



SEQUENCE LISTING

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<120> LOCI FOR IDIOPATHIC GENERALIZED EPILEPSY, MUTATIONS THEREOF AND
METHOD USING SAME TO ASSESS, DIAGNOSE, PROGNOSIS OR TREAT EPILEPSY

<130> GOUD:023US

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<141> 2000-11-24

<150> 60/167,623
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20          25          30

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Lys Ala Lys Asn Pro Lys Pro Asp Lys Lys Asp Asp Asp Glu Asn Gly
35          40          45

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Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile
50          55          60

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Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu
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Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys Gly
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Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe
130 135 140

Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr
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Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Ile Ala Arg
165 170 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp
180 185 190

Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val Asp
195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu
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Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe
245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn
260 265 270

Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu
275 280 285

Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu
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Ile Asn Glu Thr Val Phe Glu Phe Asp Trp Lys Ser Tyr Ile Gln Asp
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Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys
325 330 335

Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val
340 345 350

Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe
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Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp
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Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met
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Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile
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Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala
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Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser
465 470 475 480

Asp Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu
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Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly
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Glu Glu Lys Asp Glu Asp Glu Phe Gln Lys Ser Glu Ser Glu Asp Ser
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Tyr Glu Lys Arg Tyr Ser. Ser Pro His Gln Ser Leu Leu Ser Ile Arg
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Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser
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Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp
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Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu
595 600 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln
610 615 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys
625 630 635 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly
645 650 655

Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile
660 665 670

Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu
675 680 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu
690 695 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu
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Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro
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Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro
755 760 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe

770

775

780

Met Ala Met Glu His Tyr Pro Met Thr Asp His Phe Asn Asn Val Leu
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Leu Lys Ile Ile Ala Met Asp Pro Tyr Tyr Tyr Phe Gln Glu Gly Trp
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Asn Ile Phe Asp Gly Phe Ile Val Thr Leu Ser Leu Val Glu Leu Gly
 835 840 845

Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu
 850 855 860

Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile
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Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val
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Leu Ala Ile Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe
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Gly Lys Ser Tyr Lys Asp Cys Val Cys Lys Ile Ala Ser Asp Cys Gln
 915 920 925

Leu Pro Arg Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val
 930 935 940

Phe Arg Val Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met
 945 950 955 960

Glu Val Ala Gly Gln Ala Met Cys Leu Thr Val Phe Met Met Val Met
 965 970 975

Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu
 980 985 990

Ser Ser Phe Ser Ala Asp Asn Leu Ala Ala Thr Asp Asp Asp Asn Glu
 995 1000 1005

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1040						1045					1050			
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1055						1060					1065			
Ile	Gly	Lys	Asp	Leu	Asp	Tyr	Leu	Lys	Asp	Val	Asn	Gly	Thr	Thr
1070						1075					1080			
Ser	Gly	Ile	Gly	Thr	Gly	Ser	Ser	Val	Glu	Lys	Tyr	Ile	Ile	Asp
1085						1090					1095			
Glu	Ser	Asp	Tyr	Met	Ser	Phe	Ile	Asn	Asn	Pro	Ser	Leu	Thr	Val
1100						1105					1110			
Thr	Val	Pro	Ile	Ala	Val	Gly	Glu	Ser	Asp	Phe	Glu	Asn	Leu	Asn
1115						1120					1125			
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1175						1180					1185			
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Lys Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe
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Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp
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Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile Met Gly Val Asn Leu
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Phe Ala Gly Lys Phe Tyr His Cys Ile Asn Thr Thr Thr Gly Asp
1370 1375 1380

Arg Phe Asp Ile Glu Asp Val Asn Asn His Thr Asp Cys Leu Lys
1385 1390 1395

Leu Ile Glu Arg Asn Glu Thr Ala Arg Trp Lys Asn Val Lys Val
1400 1405 1410

Asn Phe Asp Asn Val Gly Phe Gly Tyr Leu Ser Leu Leu Gln Val
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Ala Thr	Phe Lys Gly Trp Met	Asp Ile Met Tyr Ala	Ala Val Asp
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Met Tyr	Leu Tyr Phe Val Ile	Phe Ile Ile Phe Gly	Ser Phe Phe
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Thr Leu	Asn Leu Phe Ile Gly	Val Ile Ile Asp Asn	Phe Asn Gln
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Gln Lys	Lys Lys Phe Gly Gly	Gln Asp Ile Phe Met	Thr Glu Glu
1490	1495	1500	
Gln Lys	Lys Tyr Tyr Asn Ala	Met Lys Lys Leu Gly	Ser Lys Lys
1505	1510	1515	
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1520	1525	1530	
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1670						1675						1680			
Tyr Ala	Ile Phe	Gly Met	Ser Asn	Phe Ala	Tyr Val	Lys Arg	Glu								
1685						1690						1695			
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1775						1780						1785			
Phe Ser	Val Ala	Thr Glu	Glu Glu	Ser Ala	Glu Pro	Leu Ser	Glu Asp								
1790						1795						1800			
Asp Phe	Glu Met	Phe Tyr	Glu Val	Trp Glu	Lys Phe	Asp Pro	Asp								
1805						1810						1815			
Ala Thr	Gln Phe	Met Glu	Phe Glu	Lys Leu	Ser Gln	Phe Ala	Ala								
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1835						1840						1845			
Leu Ile	Ala Met	Asp Leu	Pro Met	Val Ser	Gly Asp	Arg Ile	His								
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 1865 1870 1875

Ser Gly Glu Met Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe
 1880 1885 1890

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 1895 1900 1905

Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Val Ile Ile Gln
 1910 1915 1920

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 1925 1930 1935

Ser Phe Thr Tyr Asn Lys Asn Lys Ile Lys Gly Gly Ala Asn Leu
 1940 1945 1950

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Ile Thr Glu Lys Thr Asp Leu Thr Met Ser Thr Ala Ala Cys Pro
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Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn

260

265

270

Leu Arg Asn Lys Cys Ile Gln Trp Pro Pro Thr Asn Ala Ser Leu Glu
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Glu His Ser Ile Glu Lys Asn Ile Thr Val Asn Tyr Asn Gly Thr Leu
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Ile Asn Glu Thr Val Phe Glu Phe Asp Trp Lys Ser Tyr Ile Gln Asp
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Ser Arg Tyr His Tyr Phe Leu Glu Gly Phe Leu Asp Ala Leu Leu Cys
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Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Met Cys Val
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Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr Phe
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Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Phe Trp
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Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr Met
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Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu Ile Asn
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Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln Met Ile
 435 440 445

Glu Gln Leu Lys Lys Gln Gln Glu Ala Ala Gln Gln Ala Ala Thr Ala
 450 455 460

Thr Ala Ser Glu His Ser Arg Glu Pro Ser Ala Ala Gly Arg Leu Ser
 465 470 475 480

Asp Ser Ser Ser Glu Ala Ser Lys Leu Ser Ser Lys Ser Ala Lys Glu
 485 490 495

Arg Arg Asn Arg Arg Lys Lys Arg Lys Gln Lys Glu Gln Ser Gly Gly
500 505 510

Glu Glu Lys Asp Glu Asp Glu Phe Gln Lys Ser Glu Ser Glu Asp Ser
515 520 525

Ile Arg Arg Lys Gly Phe Arg Phe Ser Ile Glu Gly Asn Arg Leu Thr
530 535 540

Tyr Glu Lys Arg Tyr Ser Ser Pro His Gln Ser Leu Leu Ser Ile Arg
545 550 555 560

Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Thr Ser Leu Phe Ser
565 570 575

Phe Arg Gly Arg Ala Lys Asp Val Gly Ser Glu Asn Asp Phe Ala Asp
580 585 590

Asp Glu His Ser Thr Phe Glu Asp Asn Glu Ser Arg Arg Asp Ser Leu
595 600 605

Phe Val Pro Arg Arg His Gly Glu Arg Arg Asn Ser Asn Leu Ser Gln
610 615 620

Thr Ser Arg Ser Ser Arg Met Leu Ala Val Phe Pro Ala Asn Gly Lys
625 630 635 640

Met His Ser Thr Val Asp Cys Asn Gly Val Val Ser Leu Val Gly Gly
645 650 655

Pro Ser Val Pro Thr Ser Pro Val Gly Gln Leu Leu Pro Glu Val Ile
660 665 670

Ile Asp Lys Pro Ala Thr Asp Asp Asn Gly Thr Thr Thr Glu Thr Glu
675 680 685

Met Arg Lys Arg Arg Ser Ser Ser Phe His Val Ser Met Asp Phe Leu
690 695 700

Glu Asp Pro Ser Gln Arg Gln Arg Ala Met Ser Ile Ala Ser Ile Leu
705 710 715 720

Thr Asn Thr Val Glu Glu Leu Glu Glu Ser Arg Gln Lys Cys Pro Pro
725 730 735

Cys Trp Tyr Lys Phe Ser Asn Ile Phe Leu Ile Trp Asp Cys Ser Pro
740 745 750

Tyr Trp Leu Lys Val Lys His Val Val Asn Leu Val Val Met Asp Pro
755 760 765

Phe Val Asp Leu Ala Ile Thr Ile Cys Ile Val Leu Asn Thr Leu Phe
770 775 780

Met Ala Met Glu His Tyr Pro Met Thr Asp His Phe Asn Asn Val Leu
785 790 795 800

Thr Val Gly Asn Leu Val Phe Thr Gly Ile Phe Thr Ala Glu Met Phe
805 810 815

Leu Lys Ile Ile Ala Met Asp Pro Tyr Tyr Tyr Phe Gln Glu Gly Trp
820 825 830

Asn Ile Phe Asp Gly Phe Ile Val Thr Leu Ser Leu Val Glu Leu Gly
835 840 845

Leu Ala Asn Val Glu Gly Leu Ser Val Leu Arg Ser Phe Arg Leu Leu
850 855 860

Arg Val Phe Lys Leu Ala Lys Ser Trp Pro Thr Leu Asn Met Leu Ile
865 870 875 880

Lys Ile Ile Gly Asn Ser Val Gly Ala Leu Gly Asn Leu Thr Leu Val
885 890 895

Leu Ala Ile Ile Val Phe Ile Phe Ala Val Val Gly Met Gln Leu Phe
900 905 910

Gly Lys Ser Tyr Lys Asp Cys Val Cys Lys Ile Ala Ser Asp Cys Gln
915 920 925

Leu Pro Arg Trp His Met Asn Asp Phe Phe His Ser Phe Leu Ile Val
930 935 940

Phe Arg Val Leu Cys Gly Glu Trp Ile Glu Thr Met Trp Asp Cys Met
945 950 955 960

Glu Val Ala Gly Gln Ala Met Cys Leu Thr Val Phe Met Met Val Met
965 970 975

Val Ile Gly Asn Leu Val Val Leu Asn Leu Phe Leu Ala Leu Leu Leu
980 985 990

Ser Ser Phe Ser Ala Asp Asn Leu Ala Ala Thr Asp Asp Asp Asn Glu
995 1000 1005

Met Asn Asn Leu Gln Ile Ala Val Asp Arg Met His Lys Gly Val
1010 1015 1020

Ala Tyr Val Lys Arg Lys Ile Tyr Glu Phe Ile Gln Gln Ser Phe
1025 1030 1035

Ile Arg Lys Gln Lys Ile Leu Asp Glu Ile Lys Pro Leu Asp Asp
1040 1045 1050

Leu Asn Asn Lys Lys Asp Ser Cys Met Ser Asn His Thr Ala Glu
1055 1060 1065

Ile Gly Lys Asp Leu Asp Tyr Leu Lys Asp Val Asn Gly Thr Thr
1070 1075 1080

Ser Gly Ile Gly Thr Gly Ser Ser Val Glu Lys Tyr Ile Ile Asp
1085 1090 1095

Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val
1100 1105 1110

Thr Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn
1115 1120 1125

Thr Glu Asp Phe Ser Ser Glu Ser Asp Leu Glu Glu Ser Lys Glu
1130 1135 1140

Lys Leu Asn Glu Ser Ser Ser Ser Ser Glu Gly Ser Thr Val Asp
1145 1150 1155

Ile Gly Ala Pro Val Glu Glu Gln Pro Val Val Glu Pro Glu Glu

1160		1165		1170
Thr Leu Glu Pro Glu Ala Cys	Phe Thr Glu Gly Cys	Val Gln Arg		
1175	1180	1185		
Phe Lys Cys Cys Gln Ile Asn	Val Glu Glu Gly Arg	Gly Lys Gln		
1190	1195	1200		
Trp Trp Asn Leu Arg Arg Thr	Cys Phe Arg Ile Val	Glu His Asn		
1205	1210	1215		
Trp Phe Glu Thr Phe Ile Val	Phe Met Ile Leu Leu	Ser Ser Gly		
1220	1225	1230		
Ala Leu Ala Phe Glu Asp Ile	Tyr Ile Asp Gln Arg	Lys Thr Ile		
1235	1240	1245		
Lys Thr Met Leu Glu Tyr Ala	Asp Lys Val Phe Thr	Tyr Ile Phe		
1250	1255	1260		
Ile Leu Glu Met Leu Leu Lys	Trp Val Ala Tyr Gly	Tyr Gln Thr		
1265	1270	1275		
Tyr Phe Thr Asn Ala Trp Cys	Trp Leu Asp Phe Leu	Ile Val Asp		
1280	1285	1290		
Val Ser Leu Val Ser Leu Thr	Ala Asn Ala Leu Gly	Tyr Ser Glu		
1295	1300	1305		
Leu Gly Ala Ile Lys Ser Leu	Arg Thr Leu Arg Ala	Leu Arg Pro		
1310	1315	1320		
Leu Arg Ala Leu Ser Arg Phe	Glu Gly Met Arg Val	Val Val Asn		
1325	1330	1335		
Ala Leu Leu Gly Ala Ile Pro	Ser Ile Met Asn Val	Leu Leu Val		
1340	1345	1350		
Cys Leu Ile Phe Trp Leu Ile	Phe Ser Ile Met Gly	Val Asn Leu		
1355	1360	1365		
Phe Ala Gly Lys Phe Tyr His	Cys Ile Asn Thr Thr	Thr Gly Asp		
1370	1375	1380		

Arg Phe	Asp Ile Glu Asp Val	Asn Asn His Thr Asp	Cys Leu Lys
1385	1390	1395	
Leu Ile	Glu Arg Asn Glu Thr	Ala Arg Trp Lys Asn	Val Lys Val
1400	1405	1410	
Asn Phe	Asp Asn Val Gly Phe	Gly Tyr Leu Ser Leu	Leu Gln Val
1415	1420	1425	
Ala Thr	Phe Lys Gly Trp Met	Asp Ile Met Tyr Ala	Ala Val Asp
1430	1435	1440	
Ser Arg	Asn Val Glu Leu Gln	Pro Lys Tyr Glu Glu	Ser Leu Tyr
1445	1450	1455	
Met Tyr	Leu Tyr Phe Val Ile	Phe Ile Ile Phe Gly	Ser Phe Phe
1460	1465	1470	
Thr Leu	Asn Leu Phe Ile Gly	Val Ile Ile Asp Asn	Phe Asn Gln
1475	1480	1485	
Gln Lys	Lys Lys Phe Gly Gly	Gln Asp Ile Phe Met	Thr Glu Glu
1490	1495	1500	
Gln Lys	Lys Tyr Tyr Asn Ala	Met Lys Lys Leu Gly	Ser Lys Lys
1505	1510	1515	
Pro Gln	Lys Pro Ile Pro Arg	Pro Gly Asn Lys Phe	Gln Gly Met
1520	1525	1530	
Val Phe	Asp Phe Val Thr Arg	Gln Val Phe Asp Ile	Ser Ile Met
1535	1540	1545	
Ile Leu	Ile Cys Leu Asn Met	Val Thr Met Met Val	Glu Thr Asp
1550	1555	1560	
Asp Gln	Ser Glu Tyr Val Thr	Thr Ile Leu Ser Arg	Ile Asn Leu
1565	1570	1575	
Val Phe	Ile Val Leu Phe Thr	Gly Glu Cys Val Leu	Lys Leu Ile
1580	1585	1590	

Ser	Leu	Arg	His	Tyr	Tyr	Phe	Thr	Ile	Gly	Trp	Asn	Ile	Phe	Asp
1595						1600					1605			
Phe	Val	Val	Val	Ile	Leu	Ser	Ile	Val	Gly	Met	Phe	Leu	Ala	Glu
1610						1615					1620			
Leu	Ile	Glu	Lys	Tyr	Phe	Val	Ser	Pro	Thr	Leu	Phe	Arg	Val	Ile
1625						1630					1635			
Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg	Leu	Ile	Lys	Gly	Ala
1640						1645					1650			
Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu	Met	Met	Ser	Leu	Pro
1655						1660					1665			
Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe	Leu	Val	Met	Phe	Ile
1670						1675					1680			
Tyr	Ala	Ile	Phe	Gly	Met	Ser	Asn	Phe	Ala	Tyr	Val	Lys	Arg	Glu
1685						1690					1695			
Val	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Glu	Thr	Phe	Gly	Asn	Ser
1700						1705					1710			
Met	Ile	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser	Ala	Gly	Trp	Asp	Gly
1715						1720					1725			
Leu	Leu	Ala	Pro	Ile	Leu	Asn	Ser	Lys	Pro	Pro	Asp	Cys	Asp	Pro
1730						1735					1740			
Asn	Lys	Val	Asn	Pro	Gly	Ser	Ser	Val	Lys	Gly	Asp	Cys	Gly	Asn
1745						1750					1755			
Pro	Ser	Val	Gly	Ile	Phe	Phe	Phe	Val	Ser	Tyr	Ile	Ile	Ile	Ser
1760						1765					1770			
Phe	Leu	Val	Val	Val	Asn	Met	Tyr	Ile	Ala	Val	Ile	Leu	Glu	Asn
1775						1780					1785			
Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Ala	Glu	Pro	Leu	Ser	Glu	Asp
1790						1795					1800			

Asp Phe Glu Met Phe Tyr Glu Val Trp Glu Lys Phe Asp Pro Asp
1805 1810 1815

Ala Thr Gln Phe Met Glu Phe Glu Lys Leu Ser Gln Phe Ala Ala
1820 1825 1830

Ala Leu Glu Pro Pro Leu Asn Leu Pro Gln Pro Asn Lys Leu Gln
1835 1840 1845

Leu Ile Ala Met Asp Leu Pro Met Val Ser Gly Asp Arg Ile His
1850 1855 1860

Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu
1865 1870 1875

Ser Gly Glu Met Asp Ala Leu Arg Ile Gln Met Glu Glu Arg Phe
1880 1885 1890

Met Ala Ser Asn Pro Ser Lys Val Ser Tyr Gln Pro Ile Thr Thr
1895 1900 1905

Thr Leu Lys Arg Lys Gln Glu Glu Val Ser Ala Val Ile Ile Gln
1910 1915 1920

Arg Ala Tyr Arg Arg His Leu Leu Lys Arg Thr Val Lys Gln Ala
1925 1930 1935

Ser Phe Thr Tyr Asn Lys Asn Lys Ile Lys Gly Gly Ala Asn Leu
1940 1945 1950

Leu Ile Lys Glu Asp Met Ile Ile Asp Arg Ile Asn Glu Asn Ser
1955 1960 1965

Ile Thr Glu Lys Thr Asp Leu Thr Met Ser Thr Ala Ala Cys Pro
1970 1975 1980

Pro Ser Tyr Asp Arg Val Thr Lys Pro Ile Val Glu Lys His Glu
1985 1990 1995

Gln Glu Gly Lys Asp Glu Lys Ala Lys Gly Lys
2000 2005

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<212> DNA
<213> Homo sapiens

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gcaaggagaa gcaatactgg gagattacag agaagaaagg aaaaaaggct gagagaaaag 180
aggttgagga agaaatcata aatctggatt gtgagaaagt gtttaatat tagccactag 240
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gaggtctctg gtgcatgtgt gtatgtgtgc gtttgtgtgt gtttgtgtgt ctgtgtgttc 420
tgccccagtg agactgcagc ccttgtaaact actttgacac cttttgcaag aaggaatctg 480
aacaattgca actgaaggca cattgttatc atctcgtctt tgggtgatgc tgttcctcac 540
tgcagatgga taattttcct tttaatcagg taagccatct aattgtttca tcttgatttt 600
aagtttattc attccagtta ttccttttga aaaagagtcc atggaaattc agtttgggca 660
gagcaggaag tccatttttg tatgtgtatt cagaccaact gtccccctcc tccctctcct 720
cctcttcttg tcccctcccc cgcgccctcc tctctcaacc ttccatgaac tgaaatcagg 780
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catctggcca 850

<210> 6
<211> 483
<212> DNA
<213> Homo sapiens

<400> 6
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gaataaatgg taattaaaaat gtgcaggatg acaagatgga gcaaacagtg cttgtaccac 120
caggacctga cagcttcaac ttcttcacca gagaatctct tgcggctatt gaaagacgca 180
ttgcagaaga aaaggcaaag aatcccaaac cagacaaaaa aagatgacga cgaaaaatgg 240
cccaaagcaa atagtgactt ggaagctgga aagaaccttc catttattta tggagacatt 300
cctccagaga tgggtgtcaga gcccctggag gacctggacc cctactatat caataagaaa 360
gtgagtgttt tttttatcag gcatattttt gctgctaatt gcctactgca ttccttggac 420
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<210> 7
<211> 497
<212> DNA
<213> Homo sapiens

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agtttaagtg gtttatactt tcatacttct atgttggtgtt cctgtcttac agacttttat 180
agtattgaat aaaggggaagg ccactctccg gttcagtgcc acctctgccc tgtacatttt 240
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ttcaagtgat taatattaac tatttgtaca tgatctgtaa gcactttata gctaaatata 360
aaattaagtt gggaaatgtc catattatat aggtttcatc actctcattt tgcactcttg 420
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<210> 8
<211> 501
<212> DNA
<213> Homo sapiens

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tatccctgaa ttttggctaa gctgcagttt gggcttttca atgttagctt tttgtaatat 180
aacacttgga ttttgatttt cttttgtgtg ttccttaaca ataacctaca ttattcagca 240
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attggacaaa gaatgtagag taagttcaac ttatatTTTT aataacatat atacattygg 360
gattytgaaa ctgtgtctta atgtagtctt aaaataaaac tgaagagcat tttattaaag 420
tcattcctag acaaaattac gcagcaagag gacaatgctc attggccctc aggctgctg 480
gcgttatact gattatcact c 501

<210> 9
<211> 563
<212> DNA

<213> Homo sapiens

<400> 9

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aaaatccatc tgcttagttt tcttttttag tatttatcta ttccactgat ggagtataa	180
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cagatacacc ttcacaggaa tatatacttt tgaatcactt ataaaaatta ttgcaagggg	300
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cattacattt gcgtaagtgc ctttbytgaa actttaagag agaacatagt ttggttttcc	420
atcagtgctt atgcttttaa gaatagggtt gctttacctg tagaatattt ttgtgtgatt	480
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<210> 10

<211> 253

<212> DNA

<213> Homo sapiens

<400> 10

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agtcttgaga gctttgaaaa ctatttcggt aattccaggt aagaagtgat tagagtaaag	180
gataggctct ttgtacctac agctttttct ttgtgtcctg tttttgtgtt tgtgtgtgaa	240
ctcccgtta cag	253

<210> 11

<211> 340

<212> DNA

<213> Homo sapiens

<400> 11

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ggcaatgtct cggcattgag aacattcaga gttctccgag cattgaagac gatttcagtc	180
attccagggt agagcaaggt tagataatga gacggacca tcatgtgatt cagcatcctt	240
ctctgcttga cattcagttt tacagaaaat caggaatcat aagactagggt gttcaaagaa	300

atgattatta tgttagacat agcttatcag cctggagtta 340

<210> 12
<211> 409
<212> DNA
<213> Homo sapiens

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<210> 13
<211> 266
<212> DNA
<213> Homo sapiens

<400> 13
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cgactttctt ttttcaaaca ggatatcatt atttcctgga gggtttttta gatgcactac 180
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<210> 14
<211> 604
<212> DNA
<213> Homo sapiens

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gaaatagatt agttacttat ttgtcaaact tttattttga aataccaaat ctttctgact 180
aggcaatatc atagcatagt atcagagtaa aaaggcagca gaacgacttg taatactttc 240
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cccaattatg gctacacaag ctttgatacc ttcagttggg cttttttgtc cttgtttcga	360
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ataacacata ctgagcagag tgatgccaa gattgcaatt ctctcccatt tcttcttggc	600
tcaa	604

<210> 15
 <211> 378
 <212> DNA
 <213> Homo sapiens

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acatgatatt ttttgtattg gtcattttct tgggctcatt ctacctaata aatttgatcc	180
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<210> 16
 <211> 845
 <212> DNA
 <213> Homo sapiens

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cataataaat gttaccatgg agcaaaactaa attatctcca aaagccttca ttaggtagaa	180
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cagttcaata tatttttttaa aagccatgca aatacttcag ccctttcaaa gaaagataca	300
gtctcttcag gtgctatgtt aaaatcattt ctcttcaata tagcaggcag caacggcaac	360
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aactgaatca accactgttg tggtatatatt aaacccatcc cttcttcaca tagttatgca	780
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tgaca	845

<210> 17
 <211> 965
 <212> DNA
 <213> Homo sapiens

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taaaatgaga atgataatca aaaggaatga accatattct gttatgaatg ctgaaatctc	240
cttctacata atcttgcaaa atgaaatcac attcaaatgt ccatattaat atgactctat	300
ttgtbtgctc tttcaaactt ctagtctttg ttgagcatcc gtggctccct attttcacca	360
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gagaacgact tcgcagatga tgagcacagc acctttgagg ataacgagag ccgtagagat	480
tccttgtttg tgccccgacg acacggagag agacgcaaca gcaacctgag tcagaccagt	540
aggatcatccc ggatgctggc agtgtttcca gcgaatggga agatgcacag cactgtggat	600
tgcaatggtg tgggttcctt ggttggtgga ccttcagttc ctacatcgcc tgttggacag	660
cttctgccag aggtgataat agataagcca gctactgatg acaatgtaag gaagtyttaa	720
atagttcagg catggctggc tcactattgc tgcaccagcc agtgtgtcta cagaacggca	780
accttgagaa tgattcctgg ttggtcacgc tgtgaatgca cctgcatctt gtaatatctt	840
tgatagacta accaactaaa acttaaaacc ttagcagtcg cctgcacaaa cctgaatgca	900
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gattt	965

<210> 18
 <211> 641

<212> DNA

<213> Homo sapiens

<400> 18

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tctattttcg tttcaattat tttcaccaaa cttatatgtt ctcatttcaa acaaatatat	480
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<210> 19

<211> 818

<212> DNA

<213> Homo sapiens

<400> 19

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tctgtaacaa aaatgtgttg attactgaaa ataagtttag tggatatgaa ataaatgtgt	240
gtgtataaag tawacctttt ggtgggtctt tttttttttt ttcttaatct agaacttgaa	300
gaatccaggc agaaatgccc accctgttgg tataaatttt ccaacatatt cttaatctgg	360
gactgttctc catattgggt aaaagtgaaa catgttgtca acctgggtgt gatggacca	420
tttgttgacc tggccatcac catctgtatt gtcttaaata ctcttttcat ggccatggag	480
cactatccaa tgacggacca tttcaataat gtgcttacag taggaaactt ggtaagcata	540
ttggaaggta aatgtgttta gtcttcaaat tttctgcttg aaaaactgtt tacatttaat	600
tgtgtatagc agtctttcaa ccataccttca tgcttcctgg cccctgcaaa atcgcaatta	660
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aaactgagaa aggcataaggc ctacagcact acttgaaaag tcaacagcaa tattttataat	780
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<210> 20
 <211> 645
 <212> DNA
 <213> Homo sapiens

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aactacaaat tgccatacaa atttaagtta gtaatagaat cattgtggga aaatagcata	180
agcattatgt tctaagagca aatcttatgt catgtatgtt attatctggg ggaattagat	240
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ttattgccat ggatccttac tattatttcc aagaaggctg gaatatcttt gacggtttta	360
ttgtgacgct tagcctggta gaacttggac tcgccaatgt ggaagggtta tctgttctcc	420
gttcatttcg attggtaaaa aaaaaaaaaa aaggaaccaa attcaaaaac ctttctaaca	480
ttcagggttc ttgcatagca ttgtcatagt ttttttgcca cacaaccatt aggcattgta	540
agtttttctg taacatttgc attgtcaaaa acttttccta catgggaata attctcaatt	600
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<210> 21
 <211> 829
 <212> DNA
 <213> Homo sapiens

<400> 21	
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aaatatatat taatctttca ttttccagct gcgagatttc aagttggcaa aatcttggcc	120
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cctcgtcttg gccatcatcg tcttcatttt tgccgtggtc ggcatgcagc tctttggtaa	240
aagctacaaa gatttgttct gcaagatcgc cagtgattgt caactccac gctggcacat	300
gaatgacttc ttccactcck hcctgattgt gttccgcgtg ctgtgtgggg agtggataga	360
gaccatgtgg gactgtatgg aggttgctgg tcaagccatg tgccttactg tcttcatgat	420
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aaaaacaaac tatgattatt ggtttaaaaag tccattacct tggatatatt atcactttaa	660
caacacagca atatabcagt gccctgcat tttttatacc aaattctatt ttgtcagtca	720
ctttatcaca ttttttatgt gaattacaat agagtatcat attgagatga gcctaaaagg	780
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<210> 22
 <211> 909
 <212> DNA
 <213> Homo sapiens

<400> 22	
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agaaatcatg tctttgtcca aggatgtgct attgagccag tcacaaattc agatcaccca	180
tcttctaate actatgctgt ggtgtttcct tctcatcaag ttttagaact tagagttttt	240
tccacactta aaagaaagaa taagtgattg taatctgctc ttccctacat tgggtgtaaaa	300
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aaaatacatt attgatgaaa gtgattacat gtcattcata aacaaccca gtcttactgt	720
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tagtgaatcg gatctggaag aaagcaaaga ggtaagattc tataggtgtg ggtaggtatg	840
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tacttaaga	909

<210> 23
 <211> 516
 <212> DNA
 <213> Homo sapiens

<220>
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<222> (393)..(393)
<223> n = a, c, t or g

<220>
<221> misc_feature
<222> (415)..(415)
<223> N = a, c, t or g

<220>
<221> misc_feature
<222> (454)..(454)
<223> N = a, c, t or g

<220>
<221> misc_feature
<222> (513)..(513)
<223> n = a, c, t or g

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aaattcatag taataatcct tcttggcagg caacttatta ccaaaattaa ggactttact 180
ttctatgtcc atctcactta cagaaactga atgaaagcag tagctcatca gaaggtagca 240
ctgtggacat cggcgcacct gtagaagaac agcccgtagt ggaacctgaa gaaactcttg 300
aaccgaagc ttgtttcact gaaggtaaag aaaagaatcc taatgttaat ctttcatttg 360
gagtgcagct tatttagctg ttggtcagct aanataaatc acatataata aaatngcact 420
ttgtaataga tataattcaa tcacctctaa tatnttgaca gacaaaaaaaa cttaaagtct 480
agtgtcatgc ttgattata tctgcccaat atntgg 516

<210> 24
<211> 640
<212> DNA
<213> Homo sapiens

<400> 24
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actctaggct tagagagcta tgctagcaag acagagatga gcatagtaat aaaaagacaa 120
gacaaggaca ttgctaaagg atattatgga agcagagaca ctttatctac ttttatttca 180
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gatttactct ataactctat atttctggat taacttttac tatgtatgta aatataattt	540
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 <211> 607
 <212> DNA
 <213> Homo sapiens

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ttgcgaggaa aaaaaaaaaag taacagtaac tactgtttct ctgccctcct attccaatga	180
aatgtcatat gcatatgatt aattttttta atagcttatg gagtataatt atttttgaaa	240
gctaataatg tgtaacattt tctttatagg catttgaaga tatatatatt gaycagcgaa	300
agacgattaa gacgatgttg gaatatgctg acaaggtttt cacttacatt ttcattctgg	360
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ggctggactt cttaattggt gatgtaggta tcgttcatat ttttgtctct gttcaaggta	480
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<210> 26
 <211> 336
 <212> DNA
 <213> Homo sapiens

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ttactcagaa cttggagcct atcaatctct caggacacta agagctctga gacctctaag	180
agccttatct cgatttgaag ggatgagggt aagaaaaatg aaagaacctg aagtattgta	240
tatagccaaa attaaactaa attaaattta gaaaaaagga aaaatgtatg catgcaaaag	300

gaatggcaaa ttcttgcaaa atgctcttta ttgttt 336

<210> 27
<211> 677
<212> DNA
<213> Homo sapiens

<400> 27
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aaagaatgga aagaccagag attactaggg gaattttttt tctttattaa cagataagaa 180
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tctatttaaa aaatttcaat ttgttagtac aagtttatga gccagatgg gtgaaaactt 660
tattacatgt aaggact 677

<210> 28
<211> 457
<212> DNA
<213> Homo sapiens

<400> 28
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<210> 29
<211> 379
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> (43)..(43)
<223> n = a, c, t or g

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gaaaaattat tccttggagt gttttctctg ccaaatgagt acttgaattt agaacaaatg 360
ggagtatata ttataactg 379

<210> 30
<211> 393
<212> DNA
<213> Homo sapiens

<400> 30
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gccatccatt ttctatttta acattgaaaa aaatgtacaa aaggacacag ttttaaccag 180
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ccaggagtaa gaagtatcaa atgatatggg ggaaaataca aaaacaaaaa ctgcatgctt 360
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<210> 31
<211> 539
<212> DNA
<213> Homo sapiens

<400> 31
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aactcctttg ttgttaaaag catttctatt tctctacaga acaaatttca aggaatggtc	180
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tccattgtag gtaagaaata tttaaagttc ttaaattcag ttaaataaaa gtgaaagctg	480
aaacaatcaa gattagattc aagatcatcc cagcaatcag agataatcac tgtaaatat	539

<210> 32
 <211> 3403
 <212> DNA
 <213> Homo sapiens

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<210> 33
 <211> 8349
 <212> DNA
 <213> Homo sapiens

<400> 33	
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ctggtaccgc	caggacctga cagcttccgc ttctttacca gggaatccct tgctgctatt 180
gaacaacgca	ttgcagaaga gaaagctaag agacccaaac aggaacgcaa ggatgaggat 240
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tatggagaca	ttcctccaga gatggtgtca gtgcccctgg aggatctgga cccctactat 360
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accctgccc	tttacatttt aactcccttc aaccctatta gaaaattagc tattaagatt 480
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acgccttcca ccacgtctcc accctcgtat gatagtgtga ccaaaccaga aaaagaaaaa	6060
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35 40 45

Gly Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Ser Leu Pro Phe
50 55 60

Ile Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Val Pro Leu Glu Asp
65 70 75 80

Leu Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Leu Asn Lys
85 90 95

Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu
100 105 110

Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His
115 120 125

Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val
130 135 140

Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr
145 150 155 160

Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala
165 170 175

Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn
180 185 190

Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val
195 200 205

Asp Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala
210 215 220

Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala
225 230 235 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val
245 250 255

Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly
260 265 270

Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe
275 280 285

Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly
290 295 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile
305 310 315 320

Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp
355 360 365

Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp
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Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr
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Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu
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Ile Asn Leu Ile Leu Ala Val Val Ala Met Ala Tyr Glu Glu Gln Asn
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Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala
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Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu
500 505 510

Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser
515 520 525

Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser
530 535 540

Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu

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Ser Ile Arg Gly	Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser					
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Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp						
	580			585		590
Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg						
	595			600		605
Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn						
	610			615		620
Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met						
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Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu						
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Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu						
	660			665		670
Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr						
	675			680		685
His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala						
	690			695		700
Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu						
	705			710		715
Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys						
	725			730		735
Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val						
	740			745		750
Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys						
	755			760		765
Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr						
	770			775		780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu
945 950 955 960

Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn
965 970 975

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala
980 985 990

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly
995 1000 1005

Arg Met	Gln Lys Gly Ile Asp	Phe Val Lys Arg Lys	Ile Arg Glu
1010	1015	1020	
Phe Ile	Gln Lys Ala Phe Val	Arg Lys Gln Lys Ala	Leu Asp Glu
1025	1030	1035	
Ile Lys	Pro Leu Glu Asp Leu	Asn Asn Lys Lys Asp	Ser Cys Ile
1040	1045	1050	
Ser Asn	His Thr Thr Ile Glu	Ile Gly Lys Asp Leu	Asn Tyr Leu
1055	1060	1065	
Lys Asp	Gly Asn Gly Thr Thr	Ser Gly Ile Gly Ser	Ser Val Glu
1070	1075	1080	
Lys Tyr	Val Val Asp Glu Ser	Asp Tyr Met Ser Phe	Ile Asn Asn
1085	1090	1095	
Pro Ser	Leu Thr Val Thr Val	Pro Ile Ala Val Gly	Glu Ser Asp
1100	1105	1110	
Phe Glu	Asn Leu Asn Thr Glu	Glu Phe Ser Ser Glu	Ser Asp Met
1115	1120	1125	
Glu Glu	Ser Lys Glu Lys Leu	Asn Ala Thr Ser Ser	Ser Glu Gly
1130	1135	1140	
Ser Thr	Val Asp Ile Gly Ala	Pro Ala Glu Gly Glu	Gln Pro Glu
1145	1150	1155	
Val Glu	Pro Glu Glu Ser Leu	Glu Pro Glu Ala Cys	Phe Thr Glu
1160	1165	1170	
Asp Cys	Val Arg Lys Phe Lys	Cys Cys Gln Ile Ser	Ile Glu Glu
1175	1180	1185	
Gly Lys	Gly Lys Leu Trp Trp	Asn Leu Arg Lys Thr	Cys Tyr Lys
1190	1195	1200	
Ile Val	Glu His Asn Trp Phe	Glu Thr Phe Ile Val	Phe Met Ile
1205	1210	1215	

Leu	Leu	Ser	Ser	Gly	Ala	Leu	Ala	Phe	Glu	Asp	Ile	Tyr	Ile	Glu
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Gln	Arg	Lys	Thr	Ile	Lys	Thr	Met	Leu	Glu	Tyr	Ala	Asp	Lys	Val
1235						1240					1245			
Phe	Thr	Tyr	Ile	Phe	Ile	Leu	Glu	Met	Leu	Leu	Lys	Trp	Val	Ala
1250						1255					1260			
Tyr	Gly	Phe	Gln	Val	Tyr	Phe	Thr	Asn	Ala	Trp	Cys	Trp	Leu	Asp
1265						1270					1275			
Phe	Leu	Ile	Val	Asp	Val	Ser	Leu	Val	Ser	Leu	Thr	Ala	Asn	Ala
1280						1285					1290			
Leu	Gly	Tyr	Ser	Glu	Leu	Gly	Ala	Ile	Lys	Ser	Leu	Arg	Thr	Leu
1295						1300					1305			
Arg	Ala	Leu	Arg	Pro	Leu	Arg	Ala	Leu	Ser	Arg	Phe	Glu	Gly	Met
1310						1315					1320			
Arg	Ala	Val	Val	Asn	Ala	Leu	Leu	Gly	Ala	Ile	Pro	Ser	Ile	Met
1325						1330					1335			
Asn	Val	Leu	Leu	Val	Cys	Leu	Ile	Phe	Trp	Leu	Ile	Phe	Ser	Ile
1340						1345					1350			
Met	Gly	Val	Asn	Leu	Phe	Ala	Gly	Lys	Phe	Tyr	His	Cys	Ile	Asn
1355						1360					1365			
Tyr	Thr	Thr	Gly	Glu	Met	Phe	Asp	Val	Ser	Val	Val	Asn	Asn	Tyr
1370						1375					1380			
Ser	Glu	Cys	Lys	Ala	Leu	Ile	Glu	Ser	Asn	Gln	Thr	Ala	Arg	Trp
1385						1390					1395			
Lys	Asn	Val	Lys	Val	Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu
1400						1405					1410			
Ser	Leu	Leu	Gln	Val	Ala	Thr	Phe	Lys	Gly	Trp	Met	Asp	Ile	Met
1415						1420					1425			
Tyr	Ala	Ala	Val	Asp	Ser	Arg	Asn	Val	Glu	Leu	Gln	Pro	Lys	Tyr

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Glu Asp Asn Leu Tyr Met Tyr Leu Tyr Phe Val Ile Phe Ile Ile				
1445		1450		1455
Phe Gly Ser Phe Phe Thr Leu Asn Leu Phe Ile Gly Val Ile Ile				
1460		1465		1470
Asp Asn Phe Asn Gln Gln Lys Lys Lys Phe Gly Gly Gln Asp Ile				
1475		1480		1485
Phe Met Thr Glu Glu Gln Lys Lys Tyr Tyr Asn Ala Met Lys Lys				
1490		1495		1500
Leu Gly Ser Lys Lys Pro Gln Lys Pro Ile Pro Arg Pro Ala Asn				
1505		1510		1515
Lys Phe Gln Gly Met Val Phe Asp Phe Val Thr Lys Gln Val Phe				
1520		1525		1530
Asp Ile Ser Ile Met Ile Leu Ile Cys Leu Asn Met Val Thr Met				
1535		1540		1545
Met Val Glu Thr Asp Asp Gln Ser Gln Glu Met Thr Asn Ile Leu				
1550		1555		1560
Tyr Trp Ile Asn Leu Val Phe Ile Val Leu Phe Thr Gly Glu Cys				
1565		1570		1575
Val Leu Lys Leu Ile Ser Leu Arg Tyr Tyr Tyr Phe Thr Ile Gly				
1580		1585		1590
Trp Asn Ile Phe Asp Phe Val Val Val Ile Leu Ser Ile Val Gly				
1595		1600		1605
Met Phe Leu Ala Glu Leu Ile Glu Lys Tyr Phe Val Ser Pro Thr				
1610		1615		1620
Leu Phe Arg Val Ile Arg Leu Ala Arg Ile Gly Arg Ile Leu Arg				
1625		1630		1635
Leu Ile Lys Gly Ala Lys Gly Ile Arg Thr Leu Leu Phe Ala Leu				
1640		1645		1650

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1670						1675					1680			
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1685						1690					1695			
Thr	Phe	Gly	Asn	Ser	Met	Ile	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser
1700						1705					1710			
Ala	Gly	Trp	Asp	Gly	Leu	Leu	Ala	Pro	Ile	Leu	Asn	Ser	Gly	Pro
1715						1720					1725			
Pro	Asp	Cys	Asp	Pro	Asp	Lys	Asp	His	Pro	Gly	Ser	Ser	Val	Lys
1730						1735					1740			
Gly	Asp	Cys	Gly	Asn	Pro	Ser	Val	Gly	Ile	Phe	Phe	Phe	Val	Ser
1745						1750					1755			
Tyr	Ile	Ile	Ile	Ser	Phe	Leu	Val	Val	Val	Asn	Met	Tyr	Ile	Ala
1760						1765					1770			
Val	Ile	Leu	Glu	Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Ala	Glu
1775						1780					1785			
Pro	Leu	Ser	Glu	Asp	Asp	Phe	Glu	Met	Phe	Tyr	Glu	Val	Trp	Glu
1790						1795					1800			
Lys	Phe	Asp	Pro	Asp	Ala	Thr	Gln	Phe	Ile	Glu	Phe	Ala	Lys	Leu
1805						1810					1815			
Ser	Asp	Phe	Ala	Asp	Ala	Leu	Asp	Pro	Pro	Leu	Leu	Ile	Ala	Lys
1820						1825					1830			
Pro	Asn	Lys	Val	Gln	Leu	Ile	Ala	Met	Asp	Leu	Pro	Met	Val	Ser
1835						1840					1845			
Gly	Asp	Arg	Ile	His	Cys	Leu	Asp	Ile	Leu	Phe	Ala	Phe	Thr	Lys
1850						1855					1860			

Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln
1865 1870 1875

Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr
1880 1885 1890

Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser
1895 1900 1905

Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln
1910 1915 1920

Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys
1925 1930 1935

Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys
1940 1945 1950

Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser
1955 1960 1965

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Gly Lys Ala Ile Ser Arg Phe Ser Ala Thr Pro Ala Leu Tyr Ile Leu
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Thr Pro Phe Asn Pro Ile Arg Lys Leu Ala Ile Lys Ile Leu Val His
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Ser Leu Phe Asn Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val
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Phe Met Thr Met Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr
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Thr Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala
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Arg Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn
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Trp Leu Asp Phe Thr Val Ile Thr Phe Ala Tyr Val Thr Glu Phe Val
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Asn Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala
 210 215 220

Leu Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala
 225 230 235 240

Leu Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val
 245 250 255

Phe Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly
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Asn Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Asp Asn Ser Ser Phe
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Glu Ile Asn Ile Thr Ser Phe Phe Asn Asn Ser Leu Asp Gly Asn Gly
290 295 300

Thr Thr Phe Asn Arg Thr Val Ser Ile Phe Asn Trp Asp Glu Tyr Ile
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Glu Asp Lys Ser His Phe Tyr Phe Leu Glu Gly Gln Asn Asp Ala Leu
325 330 335

Leu Cys Gly Asn Ser Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile
340 345 350

Cys Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp
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Thr Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp
370 375 380

Phe Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr
385 390 395 400

Tyr Met Ile Phe Phe Val Leu Val Ile Phe Leu Gly Ser Phe Tyr Leu
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Gln Ala Thr Leu Glu Glu Ala Glu Gln Lys Glu Ala Glu Phe Gln Gln
435 440 445

Met Leu Glu Gln Leu Lys Lys Gln Gln Glu Glu Ala Gln Ala Ala Ala
450 455 460

Ala Ala Ala Ser Ala Glu Ser Arg Asp Phe Ser Gly Ala Gly Gly Ile
465 470 475 480

Gly Val Phe Ser Glu Ser Ser Ser Val Ala Ser Lys Leu Ser Ser Lys
485 490 495

Ser Glu Lys Glu Leu Lys Asn Arg Arg Lys Lys Lys Lys Gln Lys Glu
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Gln Ser Gly Glu Glu Glu Lys Asn Asp Arg Val Leu Lys Ser Glu Ser
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Glu Asp Ser Ile Arg Arg Lys Gly Phe Arg Phe Ser Leu Glu Gly Ser
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Arg Leu Thr Tyr Glu Lys Arg Phe Ser Ser Pro His Gln Ser Leu Leu
545 550 555 560

Ser Ile Arg Gly Ser Leu Phe Ser Pro Arg Arg Asn Ser Arg Ala Ser
565 570 575

Leu Phe Ser Phe Arg Gly Arg Ala Lys Asp Ile Gly Ser Glu Asn Asp
580 585 590

Phe Ala Asp Asp Glu His Ser Thr Phe Glu Asp Asn Asp Ser Arg Arg
595 600 605

Asp Ser Leu Phe Val Pro His Arg His Gly Glu Arg Arg His Ser Asn
610 615 620

Val Ser Gln Ala Ser Arg Ala Ser Arg Val Leu Pro Ile Leu Pro Met
625 630 635 640

Asn Gly Lys Met His Ser Ala Val Asp Cys Asn Gly Val Val Ser Leu
645 650 655

Val Gly Gly Pro Ser Thr Leu Thr Ser Ala Gly Gln Leu Leu Pro Glu
660 665 670

Gly Thr Thr Thr Glu Thr Glu Ile Arg Lys Arg Arg Ser Ser Ser Tyr
675 680 685

His Val Ser Met Asp Leu Leu Glu Asp Pro Thr Ser Arg Gln Arg Ala
690 695 700

Met Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu
705 710 715 720

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Lys Phe Ala Asn Met Cys
725 730 735

Leu Ile Trp Asp Cys Cys Lys Pro Trp Leu Lys Val Lys His Leu Val
740 745 750

Asn Leu Val Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys
755 760 765

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
770 775 780

Glu Gln Phe Ser Ser Val Leu Ser Val Gly Asn Leu Val Phe Thr Gly
785 790 795 800

Ile Phe Thr Ala Glu Met Phe Leu Lys Ile Ile Ala Met Asp Pro Tyr
805 810 815

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Phe Ile Val Ser
820 825 830

Leu Ser Leu Met Glu Leu Gly Leu Ala Asn Val Glu Gly Leu Ser Val
835 840 845

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
850 855 860

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
865 870 875 880

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
885 890 895

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
900 905 910

Lys Ile Ser Asn Asp Cys Glu Leu Pro Arg Trp His Met His Asp Phe
915 920 925

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
930 935 940

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu

945		950		955		960
Thr Val Phe Met Met Val Met Val Ile Gly Asn Leu Val Val Leu Asn						
		965		970		975
Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala						
		980		985		990
Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly						
		995		1000		1005
Arg Met Gln Lys Gly Ile Asp Phe Val Lys Arg Lys Ile Arg Glu						
		1010		1015		1020
Phe Ile Gln Lys Ala Phe Val Arg Lys Gln Lys Ala Leu Asp Glu						
		1025		1030		1035
Ile Lys Pro Leu Glu Asp Leu Asn Asn Lys Lys Asp Ser Cys Ile						
		1040		1045		1050
Ser Asn His Thr Thr Ile Glu Ile Gly Lys Asp Leu Asn Tyr Leu						
		1055		1060		1065
Lys Asp Gly Asn Gly Thr Thr Ser Gly Ile Gly Ser Ser Val Glu						
		1070		1075		1080
Lys Tyr Val Val Asp Glu Ser Asp Tyr Met Ser Phe Ile Asn Asn						
		1085		1090		1095
Pro Ser Leu Thr Val Thr Val Pro Ile Ala Val Gly Glu Ser Asp						
		1100		1105		1110
Phe Glu Asn Leu Asn Thr Glu Glu Phe Ser Ser Glu Ser Asp Met						
		1115		1120		1125
Glu Glu Ser Lys Glu Lys Leu Asn Ala Thr Ser Ser Ser Glu Gly						
		1130		1135		1140
Ser Thr Val Asp Ile Gly Ala Pro Ala Glu Gly Glu Gln Pro Glu						
		1145		1150		1155
Val Glu Pro Glu Glu Ser Leu Glu Pro Glu Ala Cys Phe Thr Glu						
		1160		1165		1170

Asp Cys Val Arg Lys Phe Lys Cys Cys Gln Ile Ser Ile Glu Glu
1175 1180 1185

Gly Lys Gly Lys Leu Trp Trp Asn Leu Arg Lys Thr Cys Tyr Lys
1190 1195 1200

Ile Val Glu His Asn Trp Phe Glu Thr Phe Ile Val Phe Met Ile
1205 1210 1215

Leu Leu Ser Ser Gly Ala Leu Ala Phe Glu Asp Ile Tyr Ile Glu
1220 1225 1230

Gln Arg Lys Thr Ile Lys Thr Met Leu Glu Tyr Ala Asp Lys Val
1235 1240 1245

Phe Thr Tyr Ile Phe Ile Leu Glu Met Leu Leu Lys Trp Val Ala
1250 1255 1260

Tyr Gly Phe Gln Val Tyr Phe Thr Asn Ala Trp Cys Trp Leu Asp
1265 1270 1275

Phe Leu Ile Val Asp Val Ser Leu Val Ser Leu Thr Ala Asn Ala
1280 1285 1290

Leu Gly Tyr Ser Glu Leu Gly Ala Ile Lys Ser Leu Arg Thr Leu
1295 1300 1305

Arg Ala Leu Arg Pro Leu Arg Ala Leu Ser Arg Phe Glu Gly Met
1310 1315 1320

Arg Ala Val Val Asn Ala Leu Leu Gly Ala Ile Pro Ser Ile Met
1325 1330 1335

Asn Val Leu Leu Val Cys Leu Ile Phe Trp Leu Ile Phe Ser Ile
1340 1345 1350

Met Gly Val Asn Leu Phe Ala Gly Lys Phe Tyr His Cys Ile Asn
1355 1360 1365

Tyr Thr Thr Gly Glu Met Phe Asp Val Ser Val Val Asn Asn Tyr
1370 1375 1380

Ser	Glu	Cys	Lys	Ala	Leu	Ile	Glu	Ser	Asn	Gln	Thr	Ala	Arg	Trp
1385						1390					1395			
Lys	Asn	Val	Lys	Val	Asn	Phe	Asp	Asn	Val	Gly	Leu	Gly	Tyr	Leu
1400						1405					1410			
Ser	Leu	Leu	Gln	Val	Ala	Thr	Phe	Lys	Gly	Trp	Met	Asp	Ile	Met
1415						1420					1425			
Tyr	Ala	Ala	Val	Asp	Ser	Arg	Asn	Val	Glu	Leu	Gln	Pro	Lys	Tyr
1430						1435					1440			
Glu	Asp	Asn	Leu	Tyr	Met	Tyr	Leu	Tyr	Phe	Val	Ile	Phe	Ile	Ile
1445						1450					1455			
Phe	Gly	Ser	Phe	Phe	Thr	Leu	Asn	Leu	Phe	Ile	Gly	Val	Ile	Ile
1460						1465					1470			
Asp	Asn	Phe	Asn	Gln	Gln	Lys	Lys	Lys	Phe	Gly	Gly	Gln	Asp	Ile
1475						1480					1485			
Phe	Met	Thr	Glu	Glu	Gln	Lys	Lys	Tyr	Tyr	Asn	Ala	Met	Lys	Lys
1490						1495					1500			
Leu	Gly	Ser	Lys	Lys	Pro	Gln	Lys	Pro	Ile	Pro	Arg	Pro	Ala	Asn
1505						1510					1515			
Lys	Phe	Gln	Gly	Met	Val	Phe	Asp	Phe	Val	Thr	Lys	Gln	Val	Phe
1520						1525					1530			
Asp	Ile	Ser	Ile	Met	Ile	Leu	Ile	Cys	Leu	Asn	Met	Val	Thr	Met
1535						1540					1545			
Met	Val	Glu	Thr	Asp	Asp	Gln	Ser	Gln	Glu	Met	Thr	Asn	Ile	Leu
1550						1555					1560			
Tyr	Trp	Ile	Asn	Leu	Val	Phe	Ile	Val	Leu	Phe	Thr	Gly	Glu	Cys
1565						1570					1575			
Val	Leu	Lys	Leu	Ile	Ser	Leu	Arg	Tyr	Tyr	Tyr	Phe	Thr	Ile	Gly
1580						1585					1590			

Trp	Asn	Ile	Phe	Asp	Phe	Val	Val	Val	Ile	Leu	Ser	Ile	Val	Gly
1595						1600					1605			
Met	Phe	Leu	Ala	Glu	Leu	Ile	Glu	Lys	Tyr	Phe	Val	Ser	Pro	Thr
1610						1615					1620			
Leu	Phe	Arg	Val	Ile	Arg	Leu	Ala	Arg	Ile	Gly	Arg	Ile	Leu	Arg
1625						1630					1635			
Leu	Ile	Lys	Gly	Ala	Lys	Gly	Ile	Arg	Thr	Leu	Leu	Phe	Ala	Leu
1640						1645					1650			
Met	Met	Ser	Leu	Pro	Ala	Leu	Phe	Asn	Ile	Gly	Leu	Leu	Leu	Phe
1655						1660					1665			
Leu	Val	Met	Phe	Ile	Tyr	Ala	Ile	Phe	Gly	Met	Ser	Asn	Phe	Ala
1670						1675					1680			
Tyr	Val	Lys	Arg	Glu	Val	Gly	Ile	Asp	Asp	Met	Phe	Asn	Phe	Glu
1685						1690					1695			
Thr	Phe	Gly	Asn	Ser	Met	Ile	Cys	Leu	Phe	Gln	Ile	Thr	Thr	Ser
1700						1705					1710			
Ala	Gly	Trp	Asp	Gly	Leu	Leu	Ala	Pro	Ile	Leu	Asn	Ser	Gly	Pro
1715						1720					1725			
Pro	Asp	Cys	Asp	Pro	Asp	Lys	Asp	His	Pro	Gly	Ser	Ser	Val	Lys
1730						1735					1740			
Gly	Asp	Cys	Gly	Asn	Pro	Ser	Val	Gly	Ile	Phe	Phe	Phe	Val	Ser
1745						1750					1755			
Tyr	Ile	Ile	Ile	Ser	Phe	Leu	Val	Val	Val	Asn	Met	Tyr	Ile	Ala
1760						1765					1770			
Val	Ile	Leu	Glu	Asn	Phe	Ser	Val	Ala	Thr	Glu	Glu	Ser	Ala	Glu
1775						1780					1785			
Pro	Leu	Ser	Glu	Asp	Asp	Phe	Glu	Met	Phe	Tyr	Glu	Val	Trp	Glu
1790						1795					1800			
Lys	Phe	Asp	Pro	Asp	Ala	Thr	Gln	Phe	Ile	Glu	Phe	Ala	Lys	Leu

1805		1810		1815
Ser Asp Phe Ala Asp Ala Leu Asp Pro Pro Leu Leu Ile Ala Lys				
1820		1825		1830
Pro Asn Lys Val Gln Leu Ile Ala Met Asp Leu Pro Met Val Ser				
1835		1840		1845
Gly Asp Arg Ile His Cys Leu Asp Ile Leu Phe Ala Phe Thr Lys				
1850		1855		1860
Arg Val Leu Gly Glu Ser Gly Glu Met Asp Ala Leu Arg Ile Gln				
1865		1870		1875
Met Glu Glu Arg Phe Met Ala Ser Asn Pro Ser Lys Val Ser Tyr				
1880		1885		1890
Glu Pro Ile Thr Thr Thr Leu Lys Arg Lys Gln Glu Glu Val Ser				
1895		1900		1905
Ala Ile Ile Ile Gln Arg Ala Tyr Arg Arg Tyr Leu Leu Lys Gln				
1910		1915		1920
Lys Val Lys Lys Val Ser Ser Ile Tyr Lys Lys Asp Lys Gly Lys				
1925		1930		1935
Glu Cys Asp Gly Thr Pro Ile Lys Glu Asp Thr Leu Ile Asp Lys				
1940		1945		1950
Leu Asn Glu Asn Ser Thr Pro Glu Lys Thr Asp Met Thr Pro Ser				
1955		1960		1965
Thr Thr Ser Pro Pro Ser Tyr Asp Ser Val Thr Lys Pro Glu Lys				
1970		1975		1980
Glu Lys Phe Glu Lys Asp Lys Ser Glu Lys Glu Asp Lys Gly Lys				
1985		1990		1995
Asp Ile Arg Glu Ser Lys Lys				
2000		2005		

<210> 37
 <211> 912

<212> DNA

<213> Homo sapiens

<400> 37

gaattcttta tatgggttga atgactttct gacatagcaa ataaaaagca tgaggagaag	60
cattatctgt taacaaaatt aacacttaaa atcaacaaag ttttaatgtt tcgttccaag	120
aaaagcctgt ggaagatcag ttccacaact gagagctttg ggctgcttca gacatatgtc	180
tgtgtgtacg ctgtgaaggt gtttctcttc acagttcccc gccctctagt ggtagttaca	240
ataatgccat tttgtagtcc ctgtacagga aatgcctctt cttacttcag ttaccagaat	300
ccttttacag gaagttaggt gtggtctttg aaggagaatt aaaaaaaaaa aaaaaaaaaa	360
aaaaaagatt tttttttttt taaagcatga tggaatttta gctgcagtct tcttggggcc	420
agcttatcaa tcccaaactc tgggggtaaa agattctaca ggggtaatgt ttattatttc	480
ttattatgct tattctctgt gatgcttctc tacctttaca gtagtagaat ccttggggaa	540
atctgcagag ggaccacttt catthtgaag ctgctggctg catgttttag catgtctctt	600
ctattagaga atccaggcat ggcagtttcc tccccagtg tgcaaggacc atcttcatgc	660
ctatgtctgt cgctaggcat gagggctctc aggaatgggt gaaaaaatg agggatgttt	720
tggaggcact ataatactgg ggagggcagt ctgctagctg gtagctgaaa ggtcctgggt	780
tacttcaaca ttttttttaa ataaaactgt gcagtagttt ttgttatttt agggttccct	840
ctgttttatc tgggtgatgc tgcagaagtg aactgcataa cacatttcac tcttagaaat	900
gcattccata ta	912

<210> 38

<211> 722

<212> DNA

<213> Homo sapiens

<400> 38

ctcagtgcac gtaactgaca caatcacctc tatctaattg tcatgcttct tacctcctgt	60
tctgtagcac tttcttatgc aaggagctaa acagtgatta aaggagcagg atgaaaagat	120
ggcacagtca gtgctggtac cgccaggacc tgacagcttc cgcttcttta ccagggaatc	180
ccttgctgct attgaacaac gcattgcaga agagaaagct aagagacca aacaggaacg	240
caaggatgag gatgatgaaa atggcccaaa gccaaacagt gacttggaag cagsaaaatc	300
tcttccattt atttatggag acattcctcc agagatgggt tcaagtcccc tggaggatct	360
ggacccttac tatatcaata agaaagtgag ttcttagtca agttgccttc actgcctatt	420

tactaattgg ttctgggcta gtcccagggga tgatggtgaa gaaggctggc ctccttcct	480
ctgtctaaag tatcactaag atgctggatg ggcctgaccg tgtaatggac caatgatcct	540
agaagtcttt tggaagcact catttgaacc tgcatttgtg agacaggcag agaactgggtg	600
aggcatcctc cagcgcggga attaaggaag gacaaaagcc tattcacctt cttgaataca	660
aattatatgc ttaaaccagt gtaaattgac cctgattccc taataatgtt gagaagcaaa	720
aa	722

<210> 39
 <211> 561
 <212> DNA
 <213> Homo sapiens

<400> 39	
cctatggcat tgatcacaaa ttttcttaat aatcctcatg tcatttatca aatttaggaa	60
agtttatagt gctcagaaaa aaaaagcatc tatcttcatg tcatatgatg gtaattatta	120
tgttatacac tattttacag ggcaatatTT ataaataatg gttttacttt tctcttaaaa	180
tattcttaat atatattcta agttttgttt tatgtgttgt gttttctttt tcagacgttt	240
atagtattga ataaagggaa agcaatctct cgattcagtg ccaccctgc cctttacatt	300
ttaactccct tcaaccctat tagaaaatta gctattaaga ttttggtaca ttcatacct	360
ttttcaaadc gtcacttaat atgattttct tctttgacca agttattgag ctacacattt	420
tccaaaatat ctgtgggttg caatgttatg tgttctttct ttttctttcc ttttactcaa	480
tcgttagcat gttgcaaaat gagatcacag gtaagtgaat tactttcccc cgtcttctaa	540
gtgtttcttc tctacccaac t	561

<210> 40
 <211> 510
 <212> DNA
 <213> Homo sapiens

<400> 40	
acctaaatag cctcaaaata gttgatggct tggcctgaag acaagatcta aatatgaggt	60
tgctgagtta tagaaatggc aaaaaaagg gtcaataata gaataataag caacaaaata	120
atagtaagca ctaaagtttt aaacttcatg gtgggtgaagg catggtagtg cataaaagta	180
agatttttcc attgaacttt gtcttccttg acgatattct actttattca atatgctcat	240
tatgtgacg attcttacca actgtgtatt tatgaccatg agtaaccctc cagactggac	300
aaagaatgtg gagtaagtat aaatatTTTT caatattgac ctccctttat gtttcatatt	360

gtgcttttaa caccttgaga cctcctcaat ttctttaaca aatcatgcta gctactgtta	420
accagaccct gattcaaatt catttctgtc actaaatgtc ttctaggaca aagcttgtag	480
tgggctcact tagttgtgta aattactgca	510

<210> 41
 <211> 370
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (293)..(293)
 <223> n= a, c, t or g

<400> 41	
taagatatgt acttgtaaata taaccactag atttttaatg tgagcttggc tattgtctct	60
caggatatacc tttacaggaa tttatacttt tgaatcactt attaaaatac ttgcaagggg	120
cttttgttta gaagatttca cattttttacg ggatccatgg aattggttgg atttcacagt	180
cattactttt gcgtaagtat ctttaatacat tttctatcct ggaagagtaa atcactggtg	240
ggagcctata ctatattttc cttggtggct tgccttgaca gaccaagcat ttntcttagt	300
aatcatagtt ttcttccaat caaattatcc agtttggaga aattaggaac tatcatagta	360
aattacatgg	370

<210> 42
 <211> 370
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (133)..(133)
 <223> n = a, c, t or g

<400> 42	
caattagcac tgtaaagtaa taaagtttcc caaataacag agattatgat tgatgacaat	60
gccattttcc tcttaattgg gaaagctgat ggcgacactc atgaaattaa aaaggtcttg	120
atgaaagacc aangaagacg tagatttccc taaattctga ataactctga tttaattcta	180
caggatgta acagaatttg taaacctagg caatgtttca gctcttcgaa ctttcagagt	240
cttgagagct ttgaaaaacta tttctgtaat tccaggtgaag aagaaaatgg tataaggtgg	300

taggccccctt atatctccaa ctgtttcttg tgttctgtca ttgtgtttgt gtgtgaaccc	360
cctattacag	370

<210> 43
 <211> 410
 <212> DNA
 <213> Homo sapiens

<400> 43	
gtaagaagaa aatgggtataa ggtggtaggc cccttatatc tccaactggt tcttggtgttc	60
tgtcattgtg tttgtgtgtg aaccccctat tacagatatg tgacagagtt tgtggacctg	120
ggcaatgtct cagcgttgag aacattcaga gttctccgag cattgaaaac aatttcagtc	180
attccagggtg agagctaggt taaacaccga ggctgacttt agctacagtg gtgctacaat	240
cacagctttt gtgcagaagc cttgttgcta gttgcatatt gcaaataaat atgtaaaaaa	300
gcaagaattg gtacatcatt ttttggtatg atttgattct ttgcttttta cccgttgctt	360
tctttaaaac tattctaaat cagcctttga gtttaacaag tgttgcatga	410

<210> 44
 <211> 1066
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (229)..(229)
 <223> n = a, c, t or g

<400> 44	
aaagagtgtt tggaaatata catttggttc atttccattc acagttttct aatgaacata	60
caagttctgc tttcattcat tttcaccagc tagtaggctt ttcattgaaa tgttattcaa	120
tcacaaacat taaactaata ttggtggcat tctgcatgac atttttatct tccaggccaa	180
gctcatgata tttttgccgg taaaatagct gttgagtagt atatttaant tcccccttct	240
gattttgttt gtaggcctga agaccattgt gggggccctg atccagtcag tgaagaagct	300
ttctgatgtc atgatcttga ctgtgttctg tctaagcgtg tttgcgctaa taggattgca	360
gttgttcatg ggcaacctac gaaataaatg tttgcaatgg cctccagata attcttcctt	420
tgaaataaat atcacttcct tctttaacaa ttcattggat gggaatggta ctactttcaa	480
taggacagtg agcatattta actgggatga atatattgag gataaaaagta agatatactc	540
tataaaccat taagttgttt agttctctaa atattaaata ttatatataa tggaaattat	600

ctcaatttag atgtgaatca agtgacttag actaatttaa gatgatttaa tacatataaa	660
agagatatca aaggatacct tattctatctt ttsttatctg tccattgata tagtaaaagt	720
tctcatttga aaatgtgttg tcttatactc atgttgaaag taatttcata ttatgccata	780
ttaaaaaagg tttatttggg agacattaat cagggttttc agtcatttta ataaataagt	840
cagtagtttg aactattcmg cgtattccac tgaaatgtcg ttaagaagac tgaggggaaa	900
taatttggcc ctatttgggt gatgcaacat atgtattgag tacatatgct atatctgaaa	960
ctagagaaac catttatcaa gatgaaataa gaatttgtgt gctcctcaga aggttaagta	1020
accctgattt agccattcac ttcattccata ttctaattag tccctt	1066

<210> 45
 <211> 385
 <212> DNA
 <213> Homo sapiens

<400> 45	
gttcaattat tgtgaaaaat cttcttttagc catatatatt tattagttta tccatctcat	60
tatgattgaa aacattttgtg agctttgccca cctaaacagg gtggctgaag tgttttacag	120
gattttaatg attcttttcta ttcctttctc tttaaataagg tcacttttat tttttacagg	180
ggcaaaatga tgctctgctt tgtggcaaca gctcagatgc agggtaagtg tatgcttcct	240
actgagtttc agtccacact gctccatcag tgtcaataac ctgccacctc ccactcatcc	300
agtcccacca ctctcactc aaaaccctcc ataaattcta cttcacgggtg actctcagaa	360
tgaccaggat aagtgtagat tctca	385

<210> 46
 <211> 430
 <212> DNA
 <213> Homo sapiens

<400> 46	
tataataatg acaattatga atcacagagg aatccacaaa gtagacctta tagattctgt	60
cattatataa atcagtccac ttagtgctga gttaagtact gggtaagggtg agagaaatcg	120
gcttttttct agtgccgtga taaaacagac attggcatat attaaaacag gaaaaccaat	180
tagcagactt gccgttattg actycctctc tttcctctaa cctaattaca gccagtgtcc	240
tgaaggatac atctgtgtga aggctggtag aaaccccaac tatggctaca cgagctttga	300
caccttttagt tgggcctttt tgtccttatt tcgtctcatg actcaagact tctgggaaaa	360

cctttatcaa ctggtgagaa cagataaaat catttttctg agaatcataa aacaccgaac	420
tcaagagaat	430

<210> 47
 <211> 646
 <212> DNA
 <213> Homo sapiens

<400> 47	
tgctgtagaa tattttatta cttagagtgt aagtttgtaa catcctatat aaaatttatt	60
aaaatctctc ttccattttg cagacactac gtgctgctgg gaaaacgtac atgatatttt	120
ttgtgctggg cattttcttg ggctcattct atctaataaa tttgatcttg gctgtgggtg	180
ccatggccta tgaggaacag aatcaggcca cattggaaga ggctgaacag aaggaagctg	240
aatttcagca gatgctcgaa cagttgaaaa agcaacaaga agaagctcag gtatagttaa	300
caagcatacg gtcctttgtt tttctgtatc taaattcttt aacctaaatg ttgaggtcag	360
tggcaaggta gttgacatta gaaataggtc atatgtgttt ggtaagtgtc aggagcctgt	420
ttggttatta agaagttatt actttattgc aatgatctct gtcaatagtg tcaatagtaa	480
tggcatcaaa aaatggataa ttataattgc tttactgaca tttttttctc cttgtgact	540
ccttgaggaa attaattgatt aacaaaggcc tcatgtactc aaacttgcag agtagataaa	600
cctacatgtc ctcagttgaa gtattttctt aggggaagag gaattc	646

<210> 48
 <211> 711
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (164)..(164)
 <223> n = a, c, t or g

<400> 48	
tatgtatcat cttccatatt aatgcgcatt ttactctttg attggtctaa taacagtgt	60
ctgtgttcta aaacacagaa taaaatggag aattgttttt caagattatc ttcattgat	120
tgaagctcaa ttaagcagta acatgataat tattttttta gatnatatgc aacttccac	180
atacttttgc cccttctagg cggcagctgc agccgcatct gctgaatcaa gagacttcag	240
tggtgctggg gggataggag ttttttcaga gagttcttca gtagcatcta agttgagctc	300
caaaagttaa aaagagctga aaaacagaag aaagaaaaag aaacagaaag aacagtctgg	360

agaagaagag	aaaaatgaca	gagtcctaaa	atcggaatct	gaagacagca	taagaagaaa	420
aggtttccgt	ttttccttgg	aaggaagtag	gctgacatat	gaaaagagat	tttcttctcc	480
acaccaggta	aaaatattaa	attacatgaa	ttgtgttctc	ataaattttt	taaaagaata	540
tgccagaatt	taatggagag	aaaaccgcct	tccacctgga	tggcacaatg	ctttcagagt	600
agtgatgatt	atcaagtgtt	ttggctatca	cttcagagaa	tttgtgagtt	ttgcaacttt	660
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<210> 49

<211> 1026

<212> DNA

<213> Homo sapiens

<400> 49

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aagtgccaaa	atgccaccag	cagtcatcag	aggggtgctt	tcttccacat	gtccaatgac	180
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cagctcttaa	ctctcttcat	ctcatttttg	tttcttttct	tgttattcat	agtccttact	300
gagcatccgt	ggctcccttt	tctctccaag	acgcaacagt	agggcgagcc	ttttcagctt	360
cagaggtcga	gcaaaggaca	ttggctctga	gaatgacttt	gctgatgatg	agcacagcac	420
ctttgaggac	aatgacagcc	gaagagactc	tctgttcgtg	ccgcacagac	atggagaacg	480
gcgccacagc	aatgtcagcc	aggccagccg	tgctccagg	gtgctcccca	tcctgcccac	540
gaatgggaag	atgcatagcg	ctgtggactg	caatgggtgtg	gtctccctgg	tcggggggccc	600
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agcaaagcaa	caatttatca	agcataatgt	tygaytaata	tagttaaatt	aaatccaagg	960
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aggaga						1026

<210> 50
 <211> 601
 <212> DNA
 <213> Homo sapiens

<400> 50
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 aaagcatggg gtatatcttag tttaaataaca cctggtgtag gaatgctttg ggctttgctg 180
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 atttcaataa aatacttcct gacttgatat tgtatcatta ttacacattt tactaaataa 480
 cagtaaaatc cgtgcataac tcatggattc atatattcca cagatttttt tttttatat 540
 ttagcctgta gaaagctgct gcaaagttaa ggtatatttg aacaccactt tcataactta 600
 a 601

<210> 51
 <211> 645
 <212> DNA
 <213> Homo sapiens

<400> 51
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 ctgttcctcc agcagattaa ccataatat cttttaacaa ctttagattt tttaaattcc 120
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 tttttcttc cagaacttga agaattccaga cagaaatgcc caccatgctg gtataaattt 240
 gctaatatgt gtttgatttg ggactgttgt aaaccatggg taaaggtgaa acaccttgtc 300
 aacctggttg taatggaccc atttggtgac ctggccatca ccatctgcat tgtcttaaat 360
 acactcttca tggctatgga gcactatccc atgacggagc agttcagcag tgtactgtct 420
 gttggaacc tggtaagcct cactgagagt ttctcttcct cttgaaagag ttataattg 480
 ccttagtgaa ttttacatat tgctctcaaa ttaaatatca actaattggc catgtatatc 540
 ttgacatcaa atgttttagca tcccttttaa ataacaaaaa aatgttgcta ccatagtgca 600
 aaagagtcaa agaatttatg tacaatttga tttagaattg aattt 645

<210> 52
<211> 485
<212> DNA
<213> Homo sapiens

<400> 52
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atttaggtct tcacagggat cttcacagca gaaatgtttc tcaagataat tgccatggat 180
ccatattatt actttcaaga aggctggaat atttttgatg gttttattgt gagccttagt 240
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gtaaattaaac tgggagtgtt cataaaaatgt actttrtaat taattagtct tcattctcat 360
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ttggattgcc ataccaccaa atggtagttt cttcttcac atagctttaa taaagttcac 480
ttaa 485

<210> 53
<211> 602
<212> DNA
<213> Homo sapiens

<400> 53
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tatataataa taaaataaaa taaaaataaa aataaaaaaa taaaataaaa ataaaattgc 120
agattttttt agaaatgcag agattaacac tgttcttgct tttatttcca gctccgagtt 180
ttcaagttgg caaaatcttg gccaaactcta aatatgctaa ttaagatcat tggcaattct 240
gtgggggctc taggaaacct caccttggtt ttggccatca tcgtcttcat ttttgctgtg 300
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gtgctgtgtg gagagtggat agagaccatg tgggactgta tggaggtcgc tggccaaacc 480
atgtgcctta ctgtcttcat gatggatcat gtgattggaa atctagtgg atgtagcaaa 540
aacattttcc tcattttcat taaaaataat gtaatcatta aaaagtgttc aactgaagaa 600
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<210> 54
<211> 803

<212> DNA
<213> Homo sapiens

<400> 54
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tcatgaatta gcagaaatgc atgttagaat aaaataaggt gtcaagaaca atcttagaaa 180
actaatgatg gaaagcaatt gaagcaatag aatgttttga tcacctgttt ttctgtctgt 240
gtttcagggt ctgaacctct tcttggcctt gcttttgagt tccttcagtt ctgacaatct 300
tgctgccact gatgatgata acgaaatgaa taatctccag attgctgtgg gaaggatgca 360
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gaagcagaaa gcttttagatg aaattaaacc gcttgaagat cttaaataata aaaaagacag 480
ctgtatttcc aaccatacca ccatagaaat aggcaaagac ctcaattatc tcaaagacgg 540
aaatggaact actagtggca taggcagcag tgtagaaaaa tatgtcgtgg atgaaagtga 600
ttacatgtca ttataaaca accctagcct cactgtgaca gtaccaattg ctgttgagga 660
atctgacttt gaaaatttaa atactgaaga attcagcagc gagtcagata tggaggaaag 720
caaagaggta aaatgttaaa taaggagata ttttggtgta tataatctgt gttaaataac 780
aggtgtttta tgcgtgtctc tgt 803

<210> 55
<211> 615
<212> DNA
<213> Homo sapiens

<220>
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<222> (90)..(90)
<223> n = a, c, t or g

<220>
<221> misc_feature
<222> (378)..(386)
<223> n = a, c, t or g

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tggcattatg tttaagttct taattacaga tcaagaaaaa tgcatacaga agatgggggg 180
gggcacacct aattaatttt tatatttaga ttaaagaaaa taattaaatg tgtttttttg 240

tgggattgat tttcagaagc taaatgcaac tagttcatct gaaggcagca cggttgatat	300
tggagctccc gccgagggag aacagcctga ggttgaacct gaggaatccc ttgaacctga	360
agcctgtttt acagaagnnn nnnnnnaagc aaaacaataa catatgtggt cttgagtatc	420
ctcttttcta cccatttttt cctatttatt taaatgtctg tttatttgtc taccatctag	480
ttcatctatc tatctgtatc tatctatcta tctatctatc tagtaatcat ctatacctat	540
ccaacaactg tacatttatt tgtttttttt ttttgcattt gctgtttgaa aaaaaatgca	600
acgttttaaa ggcaa	615

<210> 56
 <211> 400
 <212> DNA
 <213> Homo sapiens

<400> 56	
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gtcttcattt ttttcccaca tatttttagac tgtgtacgga agttcaagtg ttgtcagata	180
agcatagaag aaggcaaagg gaaactctgg tggaatttga ggaaaacatg ctataagata	240
gtggagcaca attgggttcga aaccttcatt gtcttcatga ttctgctgag cagtggggct	300
ctggtaggtg atgcatgac cactccttca cctttcatct gaaatctttt ccctttccct	360
tcaatcaact catattaccc actttttaaata taagggtgtt	400

<210> 57
 <211> 560
 <212> DNA
 <213> Homo sapiens

<400> 57	
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atgataaagt aaaattcagc catgggaaac attaaacctt ccagccttag gcacctgata	120
agagcttgca tcgtttcctt ttttaagaaa tcatcaatta gagactgttt ctgatcataa	180
aatttaatag aattttttga cttacaggcc tttgaagata tatacattga gcagcgaaaa	240
accattaaga ccatgttaga atatgctgac aagggttttca cttacatatt cattctggaa	300
atgctgctaa agtgggttgc atatgggttt caagtgtatt ttaccaatgc ctgggtgctgg	360
ctagacttcc tgattgttga tgtgagtatg ctgcactttg ctgctttatt cattggcata	420

tatgtaatag ttctagcaat ggtgcctgac acagtgtagg cactcagtaa cactgtatca	480
gcccaaatat aaattatggt tctcatttca cagtgagagg atgcctcaaa acatttttta	540
ccaatttaaa tacatatata	560

<210> 58
 <211> 480
 <212> DNA
 <213> Homo sapiens

<400> 58	
aaattcttag gcctttcccc aaacttacta agtcagactc tgctattggt gtttttaaca	60
agacccttg gtgattttga aactcatgaa agttcgagaa ttactgattc attgcataga	120
gcaaggctga actgtgtaga cttttttata tgtaaataag aaaattgtgt tgctttttct	180
gtataggtct cactggttag cttaactgca aatgccttgg gttactcaga acttgggtgcc	240
atcaaatccc tcagaacact aagagctctg aggccactga gagctttgtc ccggtttgaa	300
ggaatgaggg taagactgaa tgccttagag tttgtcagaa ttattattga gagcagactg	360
acactttgta ccatggaaat gtcaaattta tggagaattt gtgtcttaca cattcatact	420
gacatagcta atcaatcaaa aataatattt accagatgcc cataatactt ggcactgctg	480

<210> 59
 <211> 640
 <212> DNA
 <213> Homo sapiens

<400> 59	
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tttggtgttg gcttttcact tatttttcct tctcatcctg tgccagggtg ttgtaaatgc	180
tcttttagga gccattccat ctatcatgaa tgtacttctg gtttgtctga tcttttggct	240
aatattcagt atcatgggag tgaatctctt tgctggcaag ttttaccatt gtattaatta	300
caccactgga gagatgtttg atgtaagcgt ggtcaacaac tacagtgagt gcaaagctct	360
cattgagagc aatcaaactg ccagggtgaa aaatgtgaaa gtaaactttg ataacgtagg	420
acttgatat ctgtctctac ttcaagtagt aagtaatcac tttattattt tccatgatgt	480
gtaattaaaa tgagtctaaa gtttttcttc ctcataatga gatatccacc tgttagaatg	540
gctattatca aacagataaa tgacaataaa tgctggcaag aatgtgaaga aaaggggaacc	600
cttgtagatt gttggcaggg atgtaaatta gtatagcttt	640

<210> 60
<211> 480
<212> DNA
<213> Homo sapiens

<400> 60
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agcttattta tatgcctgta ttgaatacat gtcaaataga attttgatca attattcaat 120
ttattttcta aaattataat tttgggaaaa aagaaaatga tatgactttt cttacaggcc 180
acgtttaagg gatggatgga tattatgtat gcagctgttg attcacgaaa tgtaagtcta 240
gttagaggga aattgttttag tttgattaaa tgtatatattc tacaatattg taatttagtg 300
atattgtcaa taaaataaaa ttatgtgctt aatttataaa acccatctat attataagga 360
taaaatattt aatcatacta tttctttcaa aattatcata ggatgatttt ctctaatac 420
tctgtatctt ttaacatata ttttctagta tttagcaagg cacctgacac aaaactttat 480

<210> 61
<211> 366
<212> DNA
<213> Homo sapiens

<400> 61
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cctgtacatg tatctttatt ttgtcatctt tattatTTTT gggtcattct ttaccttgaa 180
tcttttcatt ggtgtcatca tagataactt caaccaacag aaaaagaaga taagtatatt 240
aaaacttcat ccttgctctg aaatatgaac taaatatttc atactctttc ctttagcctc 300
caaatgcaa tcaccaaaaa aagaatataa aattcagaaa ttattttgag acatttgata 360
atcgat 366

<210> 62
<211> 560
<212> DNA
<213> Homo sapiens

<400> 62
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aaatatgact aatatggcat aatttatata ttgaataaag gcatctctat aaatacagat 120
attagtaaca atagaatgaa atgtgggagc caattttcac atgattacta aggtggattt 180

tatagccagc aaagaacaca attttaacaa gtgttgcttt catttcttta ctttggaggt	240
caagacatTTt ttatgacaga agaacagaag aaatactaca atgcaatgaa aaaactgggt	300
tcaaagaaac cacaaaaacc catacctcga cctgctgtaa gaataacata ttttcattgc	360
ctgttaaaac tatattacct aaccgtttca cagcccgaat ttctagaaac tagttatTTt	420
tgtggatttg taacacaaag ttttttacct taacaatggg actagctagc ctaaatagct	480
tgaaaaatgt actttacata tataatatgt ataaattata taatgcataa catatTTtat	540
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<210> 63
 <211> 650
 <212> DNA
 <213> Homo sapiens

<400> 63	
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gtttctaattg gaactTTttac atattatttg ttccagaaca aattccaagg aatgggtcttt	180
gattttgtaa ccaaacaagt ctttgatatc agcatcatga tcctcatctg ccttaacatg	240
gtcaccatga tgggtggaaac cgatgaccag agtcaagaaa tgacaaacad tctgtactgg	300
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aaatctaata gtccattgtt ttagtTTtag ttgccattt ctctaattgc atgctgtgct	600
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<210> 64
 <211> 3700
 <212> DNA
 <213> Homo sapiens

<400> 64	
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actttcattt gctactatta agtataacaa tatttttgggt atttgttgat tttctacagg	180

aatgtttctg gctgaactga tagaaaagta ttttgtgtcc cctaccctgt tccgagtgat	240
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gctgctcttt gctttgatga tgtcccttcc tgcgttgttt aacatcggcc tccttctttt	360
cctggtcatg ttcactctacg ccatctttgg gatgtccaat tttgcctatg ttaagaggga	420
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gaacatgtac atcgcggtca tcctggagaa cttcagtgtt gctactgaag aaagtgcaga	720
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tgtcacagtc actattgtta gtttctgttc ctagcacttt taaattgaag cacttcacaa	3060
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Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
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Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly
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Pro Leu Leu Ile Ala Lys Pro Asn Lys Val Gln Leu Ile Ala Met
1775 1780 1785

Asp Leu Pro Met Val Ser Gly Asp Arg Ile His Cys Leu Asp Ile
1790 1795 1800

Leu Phe Ala Phe Thr Lys Arg Val Leu Gly Glu Ser Gly Glu Met
1805 1810 1815

Asp Ala Leu Arg Ile Gln Met Glu Asp Arg Phe Met Ala Ser Asn
1820 1825 1830

Pro Ser Lys Val Ser Tyr Glu Pro Ile Thr Thr Thr Leu Lys Arg
1835 1840 1845

Lys Gln Glu Glu Val Ser Ala Ala Ile Ile Gln Arg Asn Phe Arg
1850 1855 1860

Cys Tyr Leu Leu Lys Gln Arg Leu Lys Asn Ile Ser Ser Asn Tyr
1865 1870 1875

Asn Lys Glu Ala Ile Lys Gly Arg Ile Asp Leu Pro Ile Lys Gln
1880 1885 1890

Asp Met Ile Ile Asp Lys Leu Asn Gly Asn Ser Thr Pro Glu Lys
1895 1900 1905

Thr Asp Gly Ser Ser Ser Thr Thr Ser Pro Pro Ser Tyr Asp Ser
1910 1915 1920

Val Thr Lys Pro Asp Lys Glu Lys Phe Glu Lys Asp Lys Pro Glu
1925 1930 1935

Lys Glu Ser Lys Gly Lys Glu Val Arg Glu Asn Gln Lys
1940 1945 1950

<210> 68
<211> 1951
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<213> Homo sapiens

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<400> 68

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Phe Thr Arg Glu Ser Leu Ala Ala Ile Glu Lys Arg Ala Ala Glu Glu
20 25 30

Lys Ala Lys Lys Pro Lys Lys Glu Gln Asp Asn Asp Asp Glu Asn Lys
35 40 45

Pro Lys Pro Asn Ser Asp Leu Glu Ala Gly Lys Asn Leu Pro Phe Ile
50 55 60

Tyr Gly Asp Ile Pro Pro Glu Met Val Ser Glu Pro Leu Glu Asp Leu
65 70 75 80

Asp Pro Tyr Tyr Ile Asn Lys Lys Thr Phe Ile Val Met Asn Lys Gly
85 90 95

Lys Ala Ile Ser Arg Phe Ser Ala Thr Ser Ala Leu Tyr Ile Leu Thr
100 105 110

Pro Leu Asn Pro Val Arg Lys Ile Ala Xaa Lys Ile Leu Val His Ser
115 120 125

Leu Phe Ser Met Leu Ile Met Cys Thr Ile Leu Thr Asn Cys Val Phe
130 135 140

Met Thr Leu Ser Asn Pro Pro Asp Trp Thr Lys Asn Val Glu Tyr Thr
145 150 155 160

Phe Thr Gly Ile Tyr Thr Phe Glu Ser Leu Ile Lys Ile Leu Ala Arg
165 170 175

Gly Phe Cys Leu Glu Asp Phe Thr Phe Leu Arg Asp Pro Trp Asn Trp
180 185 190

Leu Asp Phe Ser Val Ile Val Met Ala Tyr Val Thr Glu Phe Val Ser
195 200 205

Leu Gly Asn Val Ser Ala Leu Arg Thr Phe Arg Val Leu Arg Ala Leu
210 215 220

Lys Thr Ile Ser Val Ile Pro Gly Leu Lys Thr Ile Val Gly Ala Leu
225 230 235 240

Ile Gln Ser Val Lys Lys Leu Ser Asp Val Met Ile Leu Thr Val Phe
245 250 255

Cys Leu Ser Val Phe Ala Leu Ile Gly Leu Gln Leu Phe Met Gly Asn
260 265 270

Leu Arg Asn Lys Cys Leu Gln Trp Pro Pro Ser Asp Ser Ala Phe Glu
275 280 285

Thr Asn Thr Thr Ser Tyr Phe Asn Gly Thr Met Asp Ser Asn Gly Thr
290 295 300

Phe Val Asn Val Thr Met Ser Thr Phe Asn Trp Lys Asp Tyr Ile Gly
305 310 315 320

Asp Asp Ser His Phe Tyr Val Leu Asp Gly Gln Lys Asp Pro Leu Leu
325 330 335

Cys Gly Asn Gly Ser Asp Ala Gly Gln Cys Pro Glu Gly Tyr Ile Cys
340 345 350

Val Lys Ala Gly Arg Asn Pro Asn Tyr Gly Tyr Thr Ser Phe Asp Thr
355 360 365

Phe Ser Trp Ala Phe Leu Ser Leu Phe Arg Leu Met Thr Gln Asp Tyr
370 375 380

Trp Glu Asn Leu Tyr Gln Leu Thr Leu Arg Ala Ala Gly Lys Thr Tyr

385		390		395		400									
Met	Ile	Phe	Phe	Val	Leu	Val	Ile	Phe	Leu	Gly	Ser	Phe	Tyr	Leu	Val
				405					410					415	
Asn	Leu	Ile	Leu	Ala	Val	Val	Ala	Met	Ala	Tyr	Glu	Gly	Gln	Asn	Gln
			420					425					430		
Ala	Thr	Leu	Glu	Glu	Ala	Glu	Gln	Lys	Glu	Ala	Glu	Phe	Gln	Gln	Met
		435					440					445			
Leu	Glu	Gln	Leu	Lys	Lys	Gln	Gln	Glu	Glu	Ala	Gln	Ala	Val	Ala	Ala
	450					455					460				
Ala	Ser	Ala	Ala	Ser	Arg	Asp	Phe	Ser	Gly	Ile	Gly	Gly	Leu	Gly	Glu
465					470					475					480
Leu	Leu	Glu	Ser	Ser	Ser	Glu	Ala	Ser	Lys	Leu	Ser	Ser	Lys	Ser	Ala
				485					490					495	
Lys	Glu	Trp	Arg	Asn	Arg	Arg	Lys	Lys	Arg	Arg	Gln	Arg	Glu	His	Leu
			500					505					510		
Glu	Gly	Asn	Asn	Lys	Gly	Glu	Arg	Asp	Ser	Phe	Pro	Lys	Ser	Glu	Ser
		515					520					525			
Glu	Asp	Ser	Val	Lys	Arg	Ser	Ser	Phe	Leu	Phe	Ser	Met	Asp	Gly	Asn
	530					535					540				
Arg	Leu	Thr	Ser	Asp	Lys	Lys	Phe	Cys	Ser	Pro	His	Gln	Ser	Leu	Leu
545					550					555					560
Ser	Ile	Arg	Gly	Ser	Leu	Phe	Ser	Pro	Arg	Arg	Asn	Ser	Lys	Thr	Ser
				565					570					575	
Ile	Phe	Ser	Phe	Arg	Gly	Arg	Ala	Lys	Asp	Val	Gly	Ser	Glu	Asn	Asp
			580					585					590		
Phe	Ala	Asp	Asp	Glu	His	Ser	Thr	Phe	Glu	Asp	Ser	Glu	Ser	Arg	Arg
		595					600					605			
Asp	Ser	Leu	Phe	Val	Pro	His	Arg	His	Gly	Glu	Arg	Arg	Asn	Ser	Asn
	610					615					620				

Gly Thr Thr Thr Glu Thr Glu Val Arg Lys Arg Arg Leu Ser Ser Tyr
625 630 635 640

Gln Ile Ser Met Glu Met Leu Glu Asp Ser Ser Gly Arg Gln Arg Ala
645 650 655

Val Ser Ile Ala Ser Ile Leu Thr Asn Thr Met Glu Glu Leu Glu Glu
660 665 670

Ser Arg Gln Lys Cys Pro Pro Cys Trp Tyr Arg Phe Ala Asn Val Phe
675 680 685

Leu Ile Trp Asp Cys Cys Asp Ala Trp Leu Lys Val Lys His Leu Val
690 695 700

Asn Leu Ile Val Met Asp Pro Phe Val Asp Leu Ala Ile Thr Ile Cys
705 710 715 720

Ile Val Leu Asn Thr Leu Phe Met Ala Met Glu His Tyr Pro Met Thr
725 730 735

Glu Gln Phe Ser Ser Val Leu Thr Val Gly Asn Leu Val Phe Thr Gly
740 745 750

Ile Phe Thr Ala Glu Met Val Leu Lys Ile Ile Ala Met Asp Pro Tyr
755 760 765

Tyr Tyr Phe Gln Glu Gly Trp Asn Ile Phe Asp Gly Ile Ile Val Ser
770 775 780

Leu Ser Leu Met Glu Leu Gly Leu Ser Asn Val Glu Gly Leu Ser Val
785 790 795 800

Leu Arg Ser Phe Arg Leu Leu Arg Val Phe Lys Leu Ala Lys Ser Trp
805 810 815

Pro Thr Leu Asn Met Leu Ile Lys Ile Ile Gly Asn Ser Val Gly Ala
820 825 830

Leu Gly Asn Leu Thr Leu Val Leu Ala Ile Ile Val Phe Ile Phe Ala
835 840 845

Val Val Gly Met Gln Leu Phe Gly Lys Ser Tyr Lys Glu Cys Val Cys
850 855 860

Lys Ile Asn Asp Asp Cys Thr Leu Pro Arg Trp His Met Asn Asp Phe
865 870 875 880

Phe His Ser Phe Leu Ile Val Phe Arg Val Leu Cys Gly Glu Trp Ile
885 890 895

Glu Thr Met Trp Asp Cys Met Glu Val Ala Gly Gln Thr Met Cys Leu
900 905 910

Ile Val Phe Met Leu Val Met Val Ile Gly Asn Leu Val Val Leu Asn
915 920 925

Leu Phe Leu Ala Leu Leu Leu Ser Ser Phe Ser Ser Asp Asn Leu Ala
930 935 940

Ala Thr Asp Asp Asp Asn Glu Met Asn Asn Leu Gln Ile Ala Val Gly
945 950 955 960

Arg Met Gln Lys Gly Ile Asp Tyr Val Lys Asn Lys Met Arg Glu Cys
965 970 975

Phe Gln Lys Ala Phe Phe Arg Lys Pro Lys Val Ile Glu Ile His Glu
980 985 990

Gly Asn Lys Ile Asp Ser Cys Met Ser Asn Asn Thr Gly Ile Glu Ile
995 1000 1005

Ser Lys Glu Leu Asn Tyr Leu Arg Asp Gly Asn Gly Thr Thr Ser
1010 1015 1020

Gly Val Gly Thr Gly Ser Ser Val Glu Lys Tyr Val Ile Asp Glu
1025 1030 1035

Asn Asp Tyr Met Ser Phe Ile Asn Asn Pro Ser Leu Thr Val Thr
1040 1045 1050

Val Pro Ile Ala Val Gly Glu Ser Asp Phe Glu Asn Leu Asn Thr
1055 1060 1065

Glu Glu Phe Ser Ser Glu Ser Glu Leu Glu Glu Ser Lys Glu Lys
1070 1075 1080

Leu Asn Ala Thr Ser Ser Ser Glu Gly Ser Thr Val Asp Val Val
1085 1090 1095

Leu Pro Arg Glu Gly Glu Gln Ala Glu Thr Glu Pro Glu Glu Asp
1100 1105 1110

Leu Lys Pro Glu Ala Cys Phe Thr Glu Gly Cys Ile Lys Lys Phe
1115 1120 1125

Pro Phe Cys Gln Val Ser Thr Glu Glu Gly Lys Gly Lys Ile Trp
1130 1135 1140

Trp Asn Leu Arg Lys Thr Cys Tyr Ser Ile Val Glu His Asn Trp
1145 1150 1155

Phe Glu Thr Phe Ile Val Phe Met Ile Leu Leu Ser Ser Gly Ala
1160 1165 1170

Leu Ala Phe Glu Asp Ile Tyr Ile Glu Gln Arg Lys Thr Ile Lys
1175 1180 1185

Thr Met Leu Glu Tyr Ala Asp Lys Val Phe Thr Tyr Ile Phe Ile
1190 1195 1200

Leu Glu Met Leu Leu Lys Trp Val Ala Tyr Gly Phe Gln Thr Tyr
1205 1210 1215

Phe Thr Asn Ala Trp Cys Trp Leu Asp Phe Leu Ile Val Asp Val
1220 1225 1230

Ser Leu Val Ser Leu Val Ala Asn Ala Leu Gly Tyr Ser Glu Leu
1235 1240 1245

Gly Ala Ile Lys Ser Leu Arg Thr Leu Arg Ala Leu Arg Pro Leu
1250 1255 1260

Arg Ala Leu Ser Arg Phe Glu Gly Met Arg Val Val Val Asn Ala
1265 1270 1275

Leu Val Gly Ala Ile Pro Ser Ile Met Asn Val Leu Leu Val Cys

1280	1285	1290
Leu Ile Phe Trp Leu Ile Phe 1295	Ser Ile Met Gly Val Asn Leu Phe 1300	
Ala Gly Lys Phe Tyr His Cys 1310	Val Asn Met Thr Thr Gly Asn Met 1315	
Phe Asp Ile Ser Asp Val Asn 1325	Asn Leu Ser Asp Cys Gln Ala Leu 1330	
Gly Lys Gln Ala Arg Trp Lys 1340	Asn Val Lys Val Asn Phe Asp Asn 1345	
Val Gly Ala Gly Tyr Leu Ala 1355	Leu Leu Gln Val Ala Thr Phe Lys 1360	
Gly Trp Met Asp Ile Met Tyr 1370	Ala Ala Val Asp Ser Arg Asp Val 1375	
Lys Leu Gln Pro Val Tyr Glu 1385	Glu Asn Leu Tyr Met Tyr Leu Tyr 1390	
Phe Val Ile Phe Ile Ile Phe 1400	Gly Ser Phe Phe Thr Leu Asn Leu 1405	
Phe Ile Gly Val Ile Ile Asp 1415	Asn Phe Asn Gln Gln Lys Lys Lys 1420	
Phe Gly Gly Gln Asp Ile Phe 1430	Met Thr Glu Glu Gln Lys Lys Tyr 1435	
Tyr Asn Ala Met Lys Lys Leu 1445	Gly Ser Lys Lys Pro Gln Lys Pro 1450	
Ile Pro Arg Pro Ala Asn Lys 1460	Phe Gln Gly Met Val Phe Asp Phe 1465	
Val Thr Arg Gln Val Phe Asp 1475	Ile Ser Ile Met Ile Leu Ile Cys 1480	
Leu Asn Met Val Thr Met Met 1490	Val Glu Thr Asp Asp Gln Gly Lys 1495	

Tyr Met Thr Leu Val Leu Ser Arg Ile Asn Leu Val Phe Ile Val
1505 1510 1515

Leu Phe Thr Gly Glu Phe Val Leu Lys Leu Val Ser Leu Arg His
1520 1525 1530

Tyr Tyr Phe Thr Ile Gly Trp Asn Ile Phe Asp Phe Val Val Val
1535 1540 1545

Ile Leu Ser Ile Val Gly Met Phe Leu Ala Glu Met Ile Glu Lys
1550 1555 1560

Tyr Phe Val Ser Pro Thr Leu Phe Arg Val Ile Arg Leu Ala Arg
1565 1570 1575

Ile Gly Arg Ile Leu Arg Leu Ile Lys Gly Ala Lys Gly Ile Arg
1580 1585 1590

Thr Leu Leu Phe Ala Leu Met Met Ser Leu Pro Ala Leu Phe Asn
1595 1600 1605

Ile Gly Leu Leu Leu Phe Leu Val Met Phe Ile Tyr Ala Ile Phe
1610 1615 1620

Gly Met Ser Asn Phe Ala Tyr Val Lys Lys Glu Ala Gly Ile Asp
1625 1630 1635

Asp Met Phe Asn Phe Glu Thr Phe Gly Asn Ser Met Ile Cys Leu
1640 1645 1650

Phe Gln Ile Thr Thr Ser Ala Gly Trp Asp Gly Leu Leu Ala Pro
1655 1660 1665

Ile Leu Asn Ser Ala Pro Pro Asp Cys Asp Pro Asp Thr Ile His
1670 1675 1680

Pro Gly Ser Ser Val Lys Gly Asp Cys Gly Asn Pro Ser Val Gly
1685 1690 1695

Ile Phe Phe Phe Val Ser Tyr Ile Ile Ile Ser Phe Leu Val Val
1700 1705 1710

Val	Asn	Ser	Tyr	Ile	Ala	Val	Ile	Leu	Glu	Asn	Phe	Ser	Val	Ala
1715						1720					1725			
Thr	Glu	Glu	Ser	Ala	Glu	Pro	Leu	Ser	Glu	Asp	Asp	Phe	Glu	Met
1730						1735					1740			
Phe	Tyr	Glu	Val	Trp	Glu	Lys	Phe	Asp	Pro	Asp	Ala	Thr	Gln	Phe
1745						1750					1755			
Ile	Glu	Phe	Ser	Lys	Leu	Ser	Asp	Phe	Ala	Ala	Ala	Leu	Asp	Pro
1760						1765					1770			
Pro	Leu	Leu	Ile	Ala	Lys	Pro	Asn	Lys	Val	Gln	Leu	Ile	Ala	Met
1775						1780					1785			
Asp	Leu	Pro	Met	Val	Ser	Gly	Asp	Arg	Ile	His	Cys	Leu	Asp	Ile
1790						1795					1800			
Leu	Phe	Ala	Phe	Thr	Lys	Arg	Val	Leu	Gly	Glu	Ser	Gly	Glu	Met
1805						1810					1815			
Asp	Ala	Leu	Arg	Ile	Gln	Met	Glu	Asp	Arg	Phe	Met	Ala	Ser	Asn
1820						1825					1830			
Pro	Ser	Lys	Val	Ser	Tyr	Glu	Pro	Ile	Thr	Thr	Thr	Leu	Lys	Arg
1835						1840					1845			
Lys	Gln	Glu	Glu	Val	Ser	Ala	Ala	Ile	Ile	Gln	Arg	Asn	Phe	Arg
1850						1855					1860			
Cys	Tyr	Leu	Leu	Lys	Gln	Arg	Leu	Lys	Asn	Ile	Ser	Ser	Asn	Tyr
1865						1870					1875			
Asn	Lys	Glu	Ala	Ile	Lys	Gly	Arg	Ile	Asp	Leu	Pro	Ile	Lys	Gln
1880						1885					1890			
Asp	Met	Ile	Ile	Asp	Lys	Leu	Asn	Gly	Asn	Ser	Thr	Pro	Glu	Lys
1895						1900					1905			
Thr	Asp	Gly	Ser	Ser	Ser	Thr	Thr	Ser	Pro	Pro	Ser	Tyr	Asp	Ser
1910						1915					1920			

Val Thr Lys Pro Asp Lys Glu Lys Phe Glu Lys Asp Lys Pro Glu
 1925 1930 1935

Lys Glu Ser Lys Gly Lys Glu Val Arg Glu Asn Gln Lys
 1940 1945 1950

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<211> 1380

<212> DNA

<213> Homo sapiens

<400> 69

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gatggattat ttttatttttc tttatgtatt gtgtgcttca atatcctaataaataatatt	180
agctagggttc actgatgtat agaatctttt tctacattta gatatttctt gcaaagtgtt	240
taccagaaag caacacaaaa atactatcag tgagtatgtg tttacactgt tctctaagga	300
gtcaaattcc tcaccttgaa aataattcat cccaggaaga gaaaagggtt tcaaaagact	360
agagcaggcc acaaggggagc tttcgcaaaa ctctacacgt aaagggtaat gtaaaacttaa	420
aacctatttt tcaaacagta atttatatat cttttaattt tagtagttta tgtgtgaaac	480
aatcatgcaa aacaacaaaag tgataaaatt ttttaaaaaa attagtgaga tgcaaataac	540
tgaatatgta aaagggtctca tacatattta tatgtagtag ataagttaca ttttttttagt	600
gtgttgggaa attttagctc acatcacctc tctactgtca tcttggggca ctttcatgac	660
tacccatgct tcatgcaggt ttactttcct ccctgtgaca gaggataatg ggaatgtttt	720
ttctttggct caattttgtg tgtgtccgcc agtagatggc gtaccacttt gagtgcgac	780
ggcctttttt tctttctttt tttttttcct caaagctgtt ttctgatata tgttgggtac	840
catagagtga atctcagaac aggaagcggg gccataagca gagaggattc tggaaaggct	900
tctttgtttt cttatccaca gagaaagaaa gaaaaaaaaat tgtaactaat ttgtaaacct	960
ctgtgggtcaa aaaaaaaaaa aaaaaaaaaa gctgaacagc tgagaggaa gacacgttat	1020
accctaacca tcttggatgc tgggctttgt tatgctgtaa ttcataaggc tctgttttat	1080
caggtaagct gacaaaacat ttcattatct gcaccataga acctagctac caggctcattt	1140
tccttacttt aaaatcatct tcatgctgct atttttaacc cagtgttggt taaatgtaaa	1200
ttacaggaac caaaggcatc gtttgatgtg taaactgctt actatttctt tatctttcaa	1260
agaaaataga gcctgtctgg aaatggtgat ttatggtaca tactaggcat caatggtctt	1320

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<210> 70

<211> 840

<212> DNA

<213> Homo sapiens

<400> 70

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tggccccatt cttcctaaat catgctaggg catgctttta acaaggggtca aatatcttgc 180

tttgcacat ccttgctttc tcgatccagg gccataaaaa aaaaaggaat aaaaccaga 240

cacagagcca gagcaccct atgccaaatg tcaaagatta taggctaatt tcacctgtat 300

tctctttcta cagagattat ggagcaagaa aactgaagcc aagccacatc aaggtttgac 360

agggatgaga tacctgtcaa ggattcatag tagagtggct tactgggaaa ggagcaaaga 420

atctcttcta gggatattgt aagaataaat gagataattc acagaaggga cctggagctt 480

ttccggaaaa aggtgctgtg actatctaag gtaactaaac aacttctggg tataagtttg 540

tttttgtgga aaataaacta aaatctctac tatttaacaa ggacagctgt atcaggacca 600

aaagaaggca gaggggtgtt ttcttcttc ctctaccagt ttgttcttcc aaagaggcaa 660

atacatacag ggagacatag cacagatgac cttagggaat ggaatgatgc caaaggctgt 720

tgatgtaaga aagagagatt aactcagttt ttttttgtt tttgtttttt tgttggtgtt 780

gttggtgtt tgagacagag tctctctctg tcgcccaggc tggagtgcag tggcatgaac 840

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<211> 780

<212> DNA

<213> Homo sapiens

<400> 71

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ataaaattat gtaagaactc tgtataataa gctcacagag tacaagaaag gagaggaaaa 180

aagtaaaaga gaactgcgaa agaactatga gggatttcca aacagcaaaa ttgtcattga 240

agccatgaga aactctactc actaaattct ttaatttctc agcctacca aatattgggc 300

aaaccctaatt tctcttgag gggaaaagct gagagtctgg aactagccta tcttccgagg 360

acttagagac aacagtatgg gaatttcaac gagacgtttt tactttcttt tgaccaagat	420
tcaaattctt tattccagcc cttgataagt aaataagaag gtaaaggact atttatttgt	480
aaaaagtttt tcatgatttt gtgatggcac cttgttccat atcatctcag ataaatcaga	540
ataatttgtg aaaattactc ggtgatttcc acattagata ttttaaacct aatgttattt	600
ctaaaacaaa aaccaaccag gagaatccaa ttaagtaaaa tgtatgtatt aatataaatt	660
agctattccc atctggaaaa gggcagccat ttctgtgttg aggtgcctca atgatactga	720
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<210> 72

<211> 1025

<212> DNA

<213> Homo sapiens

<400> 72

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agaatttttt aaatgctttt aaaaaatgga caaaattata gatattcttg agtttaaata	180
taatgtttat atattatata tactgtacat tgtagaatgg ctaaataaaa ctaattaaca	240
ttaagtacag acttttgata gatttatgaa cttggcttat tgagaatgag gttgaatgat	300
gatgttttca agttcaaatg tgtagtgcag tactaaaagc atgacttaat gtttatagct	360
ttaaaaagtt actaaagaat gacatttttg ttgatgttct tatgcccaat cgcttgcttt	420
cctaactctt gtgcaatttt tctttttatt gcaggtaatt cgtatgcaag aagctacacg	480
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agcttccgcc tttttactag agaatctctt gctgctatcg aaaaacgtgc tgcagaagag	600
aaagccaaga agcccaaaaa ggaacaagat aatgatgatg agaacaacc aaagccaat	660
agtgacttgg aagctggaaa gaaccttcca tttatttatg gagacattcc tccagagatg	720
gtgtcagagc ccctggagga cctggatccc tactatatca ataagaaagt gagtattgat	780
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atatacagca tcacaatttt tcttctgtta aagattttat aatactcttc actgtcactt	900
atttttatca caatataata aaacaaacat ttataagaaa tgaagtcaag agttgggttac	960
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caaaa	1025

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 <211> 433
 <212> DNA
 <213> Homo sapiens

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 ctcttaaat aagcccatgt ctaatttagt aattttactc gtattttctg tttcagactt 180
 ttatagtaat gaataaagga aaggcaattt cccgattcag tgccacctct gccttgata 240
 ttttaactcc actaaaccct gttaggaaaa ttgctabsaa gattttggta cattcatatc 300
 cttttaatgt gaattgccta aatgctattt ctaacagttg attttaaaga aaatgtcagt 360
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<210> 74
 <211> 450
 <212> DNA
 <213> Homo sapiens

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 atttataaat ggccatggta acctactaac atttattcct taactataat ctactttatt 180
 cagcatgctt atcatgtgca ctattttgac caactgtgta tttatgacct tgagcaaccc 240
 tcctgactgg acaaagaatg tagagtaagt aggaataact tctgggaatg agaaatgcac 300
 actcaaattc tctagcaatc tccttggtgg tatagcctga cttatggttt ccacttctgt 360
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 cttctacgag gtaagtattt tcccacaaaa 450

<210> 75
 <211> 701
 <212> DNA
 <213> Homo sapiens

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accagattag attcctaaag aatatatctt ctcttcagtt taactctttg ctcaggcttg	180
taaaactaac taaatgaata gattatcttg taaatagaag taaggaacaa tattttaatg	240
aattgaaaaa ccacaaaagg ataggatttg ctatgattga aaacatttat tttaacagtt	300
caagcaaaat tgtaattttt ggcttggaag tttttcctag gtacacattc actggaatct	360
atacctttga gtcacttata aaaatcttgg caagagggtt ttgcttagaa gattttacgt	420
ttcttcgtga tccatggaac tggctggatt tcagtgtcat tgtgatggcg tgagtaactt	480
tgaaaatttg ataagcgcaa aggagtgaag atagtcatac tacaaacaag gtctttgtgt	540
catatattaa atgtagagct ttcttgtagt tcaagttaac tatatgggtt gtgtattttc	600
agaatacata ttagaataca tattgcaatg taaatatatc cagtaaatga tcaataaatg	660
gggttatctt catgtcatat agtctttctc ttcacaaaa t	701

<210> 76
 <211> 286
 <212> DNA
 <213> Homo sapiens

<400> 76	
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aactttgcca aaactatcag taactctgat ttaattctgc aggtatgtaa cagaatttgt	120
aagcctaggc aatgtttcag cccttcgaac tttcagagtc ttgagagctc tgaaaactat	180
ttctgtaatc ccaggtaaga agaaactggg gtaaggtagt aggcccctta tatctccaac	240
ttttcttggt tggtattgtg tttgtgtgtg aactccccta ttacag	286

<210> 77
 <211> 515
 <212> DNA
 <213> Homo sapiens

<400> 77	
gtaagaagaa actggtgtaa ggtagtaggc cccttatatc tccaactttt cttgtgtgtt	60
attgtgtttg tgtgtgaact cccctattac agatatgtga cagagtttgt ggacctgggc	120
aatgtctcag cgttgagaac attcagagtt ctccgagcac tgaaaacaat ttcagtcatt	180
ccagggtgaga gctagggtta acaccgaggt tgactttaat tattgagttt gaaatcaatt	240
tatatgactt acagcattag ccttggttgc tattattaca gttcatcccc gtaaataatg	300
ccaaatgatg tttcaatgtc agtttagctc ctaaaatttt ataaattaca tgcgtattta	360
taaagtcagc ctttgagttt aacagaaaat tgcagagac atcttcaaaa aatgctaatt	420

tgggcctctt gcgctctctc tctctctttt tcactacat ggctttacta acagatttgg	480
attttacat tcgctgcaga ttagttcaa aaatg	515

<210> 78
 <211> 564
 <212> DNA
 <213> Homo sapiens

<400> 78	
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gtgtaaaatc tgctgttcat ctatttccca aatcatcagg ctatccatac agctttggtg	120
tctaaatagt caagcaatca tttatggggg aaagagaatg tgtgtgacta ttaagaaatc	180
atgatttctg gcactcttcc tcaggtaacc tatagtctc tctctgcagg tttaaagacc	240
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aaatgtttgc agtggccccc aagcgattct gcttttgaaa ccaacaccac ttctacttt	420
aatggcacia tggattcaaa tgggacattt gttaatgtaa caatgagcac atttaactgg	480
aaggataaca ttggagatga cagtaagaag tattacatta tgttaacctt agtggtgctg	540
aatgaatttt caactataaa tagt	564

<210> 79
 <211> 497
 <212> DNA
 <213> Homo sapiens

<400> 79	
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tactaatact aatgtgaata ggattaatat gaaataaaat gggttttttt ttgtattaac	120
aggtcacttt tatgttttgg atgggcaaaa agacccttta ctctgtggaa atgggtcaga	180
tgcagggtaa gaaacataat atatattttt aagatataga actcttttgcg aaaaaaaaaa	240
gtaggtagga aaacaactac atgggttatat gtgtagcctt accatgtatg caataaagag	300
cagtgtgtct cccctaggaa gtgccttgtc tgccttaccg gattgccact ggtcctaaac	360
tcacagcaat taaaaattat ccctttgtga agaccttcc ccaaaatttc acagttaaga	420
tgttcttaaa ttgatgtctc aatgtgtgaa ggcccagagt ctgtctttgc tgtacatcta	480
tcagagctgt taggaaa	497

<210> 80
<211> 501
<212> DNA
<213> Homo sapiens

<400> 80
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tctaaatgtc trwaaawatt tatttgcac taaattttct atcgggtcttc ctagtgaatt 120
tcactctgata agtttcacgg tgggcaatca cctaaagtgt tctggaaatt aaagcaagat 180
aattcgtcac agatagcagc tttgggtttt gaaaattcct ataagtcaaa taaattgaaa 240
ttgctgtaat ttctaaactg accctacctc catttctctc tcttatagcc agtgtccaga 300
aggatacatc tgtgtgaagg ctggtcgaaa cccaactat ggctacacaa gctttgacac 360
ctttagctgg gctttcctgt ctctatttcg actcatgact caagactact gggaaaatct 420
ttaccagttg gtaaggcca aatgagcatg cataacattt atttttatag acatgtatga 480
aatgaaaagc ataggctgag t 501

<210> 81
<211> 432
<212> DNA
<213> Homo sapiens

<400> 81
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catacatgat attttttgtc ctggtcattt tcttgggctc attttatttg gtgaatttga 180
tcctggctgt ggtggccatg gcctatgagg ggcagaatca ggccaccttg gaagaagcag 240
aacaaaaaga ggccgaattt cagcagatgc tcgaacagct taaaagcaa caggaagaag 300
ctcaggtact gagtgataaa mgcaaagatt tatcattatt attmmtagtt tctaagtaga 360
aatagtgtta tactatagag ggtagattgg aactgctttt tcattttata tatmggcatt 420
gtcattagac ac 432

<210> 82
<211> 489
<212> DNA
<213> Homo sapiens

<400> 82
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agttgcggca gcatcagctg cttcaagaga tttcagtggg ataggtgggt taggagagct	120
gttggaaagt tcttcagaag catcaaagtt gagttccaaa agtgctaaag aatggaggaa	180
ccgaaggaag aaaagaagac agagagagca ccttgaagga aacaacaaag gagagagaga	240
cagctttccc aaatccgaat ctgaagacag cgtcaaaaaga agcagcttcc ttttctccat	300
ggatggaaac agactgacca gtgacaaaaa attctgctcc cctcatcagg tatgattttc	360
tactaagtgc tctggtttct ttgtcattgc tattgctttt tagtttttgt attttgtttt	420
ggtacacttt tgtactatct gtacttcagt tgagggacag ggaactaaca tttaatatag	480
ttgtttaaa	489

<210> 83
 <211> 653
 <212> DNA
 <213> Homo sapiens

<400> 83	
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aaaaacactc tttgtactta aatttgcttt aataaaaaata tcaaaatata tgtgtcctct	120
ataaatttga ttatccatgt ttaagggcaa gagtatacta actccaaaga aaacagatcc	180
tttaatatata atatttatta aataattgag ttcttcccct acccccatcc cattcctttc	240
ctttttgctt tctctgcagt ctctcttgag tatccgtggc tccctgtttt cccaagacg	300
caatagcaaa acaagcattt tcagtttcag aggtcgggca aaggatgttg gatctgaaaa	360
tgactttgct gatgatgaac acagcacatt tgaagacagc gaaagcagga gagactcact	420
gtttgtgccg cacagacatg gagagcgacg caacagtaac gtagtcagg ccagtatgtc	480
atccaggatg gtgccagggc ttccagcaaa tggggaagat gcacagcact gtggattgca	540
atggtgtggt ttccttggtg ggtggacctt cagctctaac gtcacctact gggcaacttc	600
cccagaggtg ataatagatg acctagctgc tactgacatt attcaccaat ttg	653

<210> 84
 <211> 566
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (477)..(477)
 <223> n = a, c, t or g

<400> 84
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tgcaaagaaa tgctatgtgg tgttgattta cttattggga agagtgggtt gagccatcag 180
tatttggttt gcagggcacc accactgaaa cggaagtcag aaagagaagg ttaagctctt 240
accagatttc aatggagatg ctggaggatt cctctggaag gcaaagagcc gtgagcatag 300
ccagcattct gaccaacaca atggaaggta agagcaggtc atggaacagc caactttctg 360
tgattatgtg ctttgtgaac tattccttct tttcatagaa ttactgaagt ctgttaccga 420
gatcgaacta tatattagac ctaagaatgt gatatatggt gtacattatc acattgntta 480
caaaactaat attggcctta ttctttttga cttgggtcct taccttactt gcagagtgat 540
atttcaacac ttgatattat atcaat 566

<210> 85
<211> 748
<212> DNA
<213> Homo sapiens

<400> 85
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aaaaagtcga tctatatgac attttaatta acattttctg aaaatattta atgggattgt 120
cttctcaagt ttcttaagta atatgaactt ctattttcaa atataagcat caattttgtt 180
aaataatgta aaatctacta gcaataataa ctcatTTTTTg ttgttattta ctactcttcc 240
ttgttattgt cctccagaa cttgaagaat ctagacagaa atgtccgcca tgctgggtata 300
gatttgccaa tgtgttcttg atctgggact gctgtgatgc atgggtaaaa gtaaaacatc 360
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taaataccct ctttatggcc atggagcact acccatgac tgagcaattc agtagtgtgt 480
tgactgtagg aaacctggta agtacatttg aagtttactt atttactttg gtagatgtgg 540
gagagataga ccaaagggaa agatgtattt gtgctgtgtt gaacccaaaa attatattct 600
ctttcctcat agaaagaaat atctaaggaa tattacaggg aatctcagag atacagccta 660
aaactcaact ggtatgaatg ctgattgttt aggccaatgt ctgtgctgat tgatcatggt 720
gtcttaccag ttgtaaacgt ctcaaaat 748

<210> 86
<211> 664

<212> DNA

<213> Homo sapiens

<400> 86

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agtgctgac tctaattttt taggtcttta ctgggatttt tacagcagaa atgggttctca	180
agatcattgc catggatcct tattactatt tccaagaagg ctggaatata tttgatggaa	240
ttattgtcag cctcagttta atggagcttg gtctgtcaaa tgtggaggga ttgtctgtac	300
tgcgatcatt cagactggta tctattttata tatatccctg tcgctcattg gcacaacatt	360
tattttgaaa ttgaatcaat gtatatattat ataattatta attttaattt taaatttaca	420
tcaatatgtg acattctaag aaaacatgta aacatccyct ttaaagctaa accattttct	480
aagaatgatg aaagcattca aaatactcta taatgattag gtatgtaggg cacattagaa	540
aacctacaag tactttctaa aactgtgttt taagtttatg aagctttttt ggccttacag	600
tctgtaaaga tacgcaaata aaaatttaga cccagttaa ttttagcttt ttattaacct	660
tact	664

<210> 87

<211> 750

<212> DNA

<213> Homo sapiens

<400> 87

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ccacgtgtgg ttctatgata ccacatacta ataaaataat gtctaaaatt atattatgat	180
tactactaac agcatctttt cacttgatta cagcttagag ttttcaagtt ggcaaaatcc	240
tggcccacac taaatatgct aattaagatc attggcaatt ctgtgggggc tctaggaaac	300
ctcaccttgg tgttgggcat catcgtcttc atttttgctg tggtcggcat gcagctcttt	360
ggtaagagct acaaagaatg tgtctgcaag atcaatgatg actgtacgct cccacgggtg	420
cacatgaacg acttcttcca ctcttctctg attgtgttcc gcgtgctgtg tggagagtgg	480
atagagacca tgtgggactg tatggaggtc gctggccaaa ccatgtgcct tattgttttc	540
atgttgggtca tggtcattgg aaaccttgtg gtatgtatgt agtacaatg ctcataaatt	600
agaacaagag cagacagtag ctaggaacgt ggccagatgt agtaaacata tctctggttt	660

atagtaagtg gcctagactg aaatccccct attagcactc agagaataag caagttat	720
ttt aacttctcct gggctctggg ttccccat	750

<210> 88
 <211> 768
 <212> DNA
 <213> Homo sapiens

<400> 88	
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atagtaagca ttcaataaac atttggtgaa ataatttttag caaagatcta tgagttccct	120
ttttaggctg ttattttaaat gcatatttca atattaarat aggcattttt ctttttttct	180
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ctgctactga tgatgacaat gaaatgaata atctgcagat tgcagtagga agaatgcaaa	300
aggggaattga ttatgtgaaa aataagatgc gggagtgttt ccaaaaagcc ttttttagaa	360
agccaaaagt tatagaaatc catgaaggca ataagataga cagctgcatg tccaataata	420
ctggaattga aataagcaaa gagcttaatt atcttagaga tgggaatgga accaccagt	480
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tcataaaciaa cccagcctc accgtcacag tgccaattgc tggtggagag tctgactttg	600
aaaacttaaa tactgaagag ttcagcagtg agtcagaact agaagaaagc aaggaggtaa	660
ggaatgcttt taaatttttt gttccatttc ctatgataac catgtactac agttatttac	720
tattttcatt gtgcttatat gcattatcga aaagcaatga ttgtaagt	768

<210> 89
 <211> 471
 <212> DNA
 <213> Homo sapiens

<400> 89	
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ttttcacaca atgacacagt atttcccagt tagttaaata aaagggggaa aatcacatct	120
ttgaaatggg attttgtttc cagaaattaa atgcaaccag ctcatctgaa ggaagcacag	180
ttgatgttgt tctaccccgga gaaggtgaac aagctgaaac tgaacccgaa gaagacctta	240
aaccggaagc ttgttttact gaaggtaaac aagctctgat gtgattaaat acaatctccc	300
cttgttcttt acggagactg aatatgcctc atttaaaaaa aaaaatttag caaacgaggt	360
gtgggtggctt atgcctgtaa ccccaaaatt ttgggaggct acggtaggag gattgcttga	420

ccccaggagt ttgagaccac cctgggaaat gtagtaaggc tttgcctcta c 471

<210> 90
<211> 623
<212> DNA
<213> Homo sapiens

<400> 90
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gctgacgata actaggaaat gaaggagatg gttaccctat gaaatgatta cctggaagtg 120
gagtggggaa ggggcaagaa agtttatttt ttcctattta agattaaaat atatttttta 180
attaactata ttttsattttt aggatgtatt aaaaagtttc cattctgtca agtaagtaca 240
gaagaaggca aagggaagat ctggtggaat cttcgaaaaa cctgctacag tattgttgag 300
cacaactggt ttgagacttt cattgtgttc atgatccttc tcagtagtgg tgcattggta 360
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cagatgcaaa cactgagctt cagaatcaaa agaaaaggca tatctgtgtc ttgcagagct 480
tggcacccaa ggtttaacga tgcaaaattc agttctgaac aaatcagcac catgaaacag 540
ccagatggaa tttctcatct ggtgtttatc taacagatgt tttcctcact gagacaacca 600
tttgagaga cattctgtaa cca 623

<210> 91
<211> 520
<212> DNA
<213> Homo sapiens

<400> 91
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ccatttaagt aaaataaaaat atttttgatt cataggcctt tgaagatata tacattgaac 180
agcgaaagac tatcaaaacc atgctagaat atgctgacaa agtctttacc tatatattca 240
ttctggaaat gcttctcaaa tgggttgctt atggatttca aacatatttc actaatgcct 300
ggtgctggct agatttcttg atcgttgatg taagtatttt aagtgatttt tataaaattg 360
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atgacataat tatgcagtta tttaaacaaa actgtaacat atgcaacaat gaggaatattc 480
tcatgggaaa gagtagagga ggtcctaaac atgggcagtg 520

<210> 92
<211> 595
<212> DNA
<213> Homo sapiens

<400> 92
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aaggtatgtc caaattagta tttagtctgc attaaataga taccacaccc tataccttca 300
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acattaagag cttaagacc tctaagagcc ttatcccggg ttgaaggcat gagggtaaga 480
agaatagaca ctctaattat tcatgtcaaa aattacatgt aggtaatgat ttagatagaa 540
aagggtgcc a tactcttctg atatttattt caatagaaat tacagaatta gaagc 595

<210> 93
<211> 787
<212> DNA
<213> Homo sapiens

<400> 93
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ttttccttca aatatgtgct agaaaaatta gaagaaacaa cttgtccacc tagattttta 180
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tcaaggaaga ttatttccct gatgttcttc gtttgaatga ctaacatttg acagcatgaa 660
aaaaagttaa tgataacacc tataatatca gcttgaattg atcataaaaa agatgttaca 720

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<210> 94
 <211> 438
 <212> DNA
 <213> Homo sapiens

<400> 94	
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tttcatctgg ttaaagtca ttgttaggtg aaatttttat gaacaattca aatatatgtt	180
atttacaggc cacatttaaa ggctggatgg atattatgta tgcagctgtt gattcacgag	240
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gtaatttaaa cactgatata tccaaaattc tatattagaa catttaatat tgcataataa	360
aaatgaacag tctgcttcaa tatagatgat gcttgattaa tgtgtgccta atatacaata	420
tgtagcta atgaaacg	438

<210> 95
 <211> 637
 <212> DNA
 <213> Homo sapiens

<400> 95	
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actagatcat actagtttta aaaaattgtt tttgtagaac aatatctcag ggtaaggcaa	120
aagtagcact gtattaagta acagcactca ataaattact gatttagtgt aagtatttat	180
agtatttttc atattattta atattttcaa tatcatttag gttaaacttc agcctgtata	240
tgaagaaaat ctgtacatgt atttatactt tgtcatcttt atcatctttg ggtcattctt	300
cactctgaat ctattcattg gtgtcatcat agataacttc aaccagcaga aaaagaagat	360
aagtattctt tagcttttac ctttcttcat tctgggggttc tgtctgttaa tacagccaaa	420
taaccagaat acctgtggtc atgacagact taaatcatgt ttatattatt ttcagttgcc	480
catgtgggta tttaagctgc agggattcca gcctctagtc agtggctcct ctcaaagttt	540
atctattgga tagctttctg acccaaaaat gtgtccactc cttcggaccc atccaacggg	600
tctccagtgc tttagcttgg cttacagagc ctttcag	637

<210> 96
<211> 637
<212> DNA
<213> Homo sapiens

<400> 96
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aagcaggata aatgtatatg taggaggata atatccactt aaaaattaga aaagattaaa 180
ggaaagacaa atatttttttg tgaaagtact attggaacac agaattgtaa ccagttttat 240
actatgtctt tactttggag gtcaagacat ctttatgaca gaggaacaga aaaaatatta 300
caatgcaatg aagaaacttg gatccaagaa acctcagaaa cccatacctc gccagcagt 360
aagaattact tgtctccttt aatgttccaa agccatgcgt ccatatgggtc aaattgagca 420
atgctctgga gcagaacata ttaggtgata tcaccaatat tgagccctaa ttataaagtt 480
catattttgc atcataattc acaacttctg cactcattag gagttaccac attccaaaaa 540
aaggaggtaa tgttctttat aatttgtgag ttgaaaactt ctagctcagg gttcctaata 600
aatacttcca aagcaagggt cactttcctg ctaccaa 637

<210> 97
<211> 759
<212> DNA
<213> Homo sapiens

<400> 97
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gaagagaaaa aaagcacaca aaattgtttg gggtaatatg aggagggtgc acatccatcc 120
cgtatgtgga agggctttat ctacaatttt actgcattat tctttatgaa atatatatag 180
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